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ABSTRACT

The United States is the only industrialized nation in the world that has no institutionalized school-to-work transition system for helping young people move from education to employment. The Academy for Educational Development's National Institute for Work and Learning (AED/NIWL) undertook a 4-year study of school-to-work transition education reform focusing on school-to-work transition reform initiatives. The final of four volumes this volume presents findings, cross-site analysis, and summary of the literature review. It identifies 12 critical elements of successful school-to-work programs: leadership from education system executives and program deliverers, professional development for teachers and staff, cross-sector collaboration, student self-determination, contextually based curriculum and instruction, a variety of work-based learning strategies, an integrated career-information and guidance system, a progressive system that begins as early as elementary or middle schools, postsecondary articulation, creative financing, and application of research. The AED/NIWL research did not conduct any cost analyses of school-to-work reform. Comparative analyses of costs, and more importantly, cost-benefit analyses that take outcomes into account, could clarify the issue of relative costs for policymakers and practitioners. The programs contributed to positive outcomes for students, business, and schools. Two tables are included. (LMI)

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Studies of Education Reform

STUDY OF SCHOOL-TO-WORK INITIATIVES

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The Studies of Education Reform were initiated by the former Office of Research in OERI under the guiding hand of its Acting Director, Joseph C. Conaty, currently Director of OERI's National Institute on Student Achievement, Curriculum, and Assessment.

Studies of Education Reform

The 12 studies were commissioned by the Office of Educational Research and Improvement (OERI) in 1991 and were all completed by fall 1995. Each study comprises three volumes. Volume I contains a discussion of the study, case study summaries of the schools or school districts examined, and recommendations. Volume II contains detailed case studies. Volume III is a technical appendix explaining the study's methodology. OERI is publishing all Volumes I as a set. Titles in this series are:

Systemic Reform
Early Childhood Reform in Seven Communities
Education Reform and Students At Risk
Parent and Community Involvement in Education
The Uses of Time for Teaching and Learning
Systemic Reform in the Professionalism of Educators
Study of Curriculum Reform
Assessment of Student Performance
Assessment of School-Based Management
School Reform and Student Diversity
Technology and Education Reform
Study of School-to-Work Initiatives

The other two volumes for each study are available through the Education Resources Information Center (ERIC) system.

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PREFACE

For most young people in high school, there is no one who is responsible for their transition from school to work. Not their counselors. Not their teachers. Not their principals. Not their parents. Not the employers in their communities.

Consider two high school students: Gwen, who is planning to go to college and her friend Anita, who has no plans to attend college after graduating from high school.

Gwen has many resources available to her:

- supportive parents and teachers;
- a college counselor;
- friends who go to college and can tell her what it is like;
- a recognized credentialing system of GPAs, class ranking, SATs, ACTs, and other standardized and achievement tests;
- Peterson's, Fiske, and other college guides and catalogues that describe different colleges and college options;
- colleges that want her and will let her visit whenever she wants to sit in on classes, talk with students, and meet with faculty and staff; and
- an extensive financial assistance program of scholarships and loans to help her pay.

Anita, on the other hand, has few resources. She has:

- little encouragement to consider college and no help with her career planning;
- no job or career counselor;
- no friends with "good" jobs;
- no resume that provides information about her employability skills, knowledge, and abilities;
- no job search or interviewing skills;
- no Peterson's guide to local employers;
- no employers who will let her visit, talk with employees, and shadow different jobs;
- no employers with good career ladders who hire young people before they've reached the age of 25 or 26; and
- no extensive financial assistance program to support her.

Why should we be concerned about students like Anita? Because they are the very people our economy will depend on in the future. They represent the 50% of our high school graduates who do not go to college as well as the 50% of those who do go to college, who do not finish. In other words, 75% of our young people do not receive college degrees. Yet these people will be at the center of our economy. They will service our air conditioning and

heating systems, maintain our offices and hospitals, work in our factories, install and repair our communication and information systems, and protect our families and communities. They will need to function in the high performance workplace predicted for the near future. But many of these young people are having a harder and harder time moving from school to work with any reasonable prospect of long-term productive employment. Many are not equipped with the basic academic and occupational skills needed for today's highly competitive global economy.

The lack of a comprehensive and effective school-to-work transition system has a significant impact on many students. It also means significant costs to business and our economy as a whole. A skill-deficient workforce hampers the nation's economic growth, productivity, and ability to compete in an international economy. In recognition of these problems, the catch phrase for American education in the 1990s seems to be "school-to-work transition." Too often that phrase is interpreted to mean that there should be one path taken by all young people directly from the classroom to the workplace. In practice, what was once the traditional route for most young people, completing school and then entering full-time employment, has given way to a variety of paths. Our use of the term "school-to-work transition" is intended to embrace this variety: young people who leave or complete high school and seek full-time work; those who enter the workforce and undertake employer-provided training; those who work and continue their education simultaneously; those who complete relatively new programs like academies or tech prep programs and then enter the full-time labor force or continue postsecondary education; those who remain in the labor force for several years and then return for postsecondary training; and finally, those who participate in high school programs that link education to work, regardless of whether the student is anticipating continued education or entry into the workplace.

With funding from the U.S. Department of Education, the Academy for Educational Development's National Institute for Work and Learning (AED/NIWL) undertook a four-year Study of School-to-Work Transition Education Reform supported by the U.S. Department of Education, Office of Educational Research and Improvement. The study focused on the planning and design, implementation, and impact of school-to-work transition reform initiatives. By documenting the design and integrity of exemplary programs and by assessing program experiences and impacts, the study offers critical lessons for those interested in adapting or adopting programs that effectively link schools with the business community to improve the transition from school to work.

This four-volume final technical report provides a comprehensive set of information on the different components of the study. This volume (volume I) presents the findings and conclusions for the overall study, the cross-site analysis, and the summary of the literature review. This volume also provides an assessment of the outcomes of school-to-work reforms for students, employers, and other partners in the system and an assessment of the resources required to implement school-to-work reforms. The volume concludes with discussions of the implications of the study for policy and practice and future research.

Volume II presents the fourteen case studies in their entirety. Each case study was prepared as a separate document and are combined in this volume. Volume III presents the

research design and methodology for the study, and volume IV contains all the products resulting from the study.

The School-to-Work Opportunities Act of 1994 offers a chance to bring together partnerships of employers, educators, and others to build an effective school-to-work system that prepares young people for either high-quality jobs or further education and training. While this study of school-to-work reform focused on programs that serve students like Anita, who are entering the world of work after high school, the findings have important implications for those at the state and local level with the responsibility for school-to-work opportunities for all students under the act.

ACKNOWLEDGMENTS

This study of school-to-work reform initiatives could not have been successfully undertaken without the assistance and support of many organizations and people. First and foremost we must thank the staff of the Office of Educational Research and Improvement. We are deeply indebted to Nevzer Stacey, the Contracting Officer's Technical Representative (COTR), for her support, insight, and expertise throughout the study. Throughout the four years of the initiative, she was both friend and colleague. Mindi Maline, who took over as the COTR in the final year of the project provided assistance and support in the final phase of the project. She succeeded in making the transition a smooth one. Carol Chelemar, the coordinator of the Studies of Education Reform, and the other COTRs worked very hard bringing the twelve studies together to share information, identify common ground, and design strategies regarding dissemination. It is not often that a project's technical staff acknowledges the role of a contracting officer, but Michelle Ringo not only kept us on task and on schedule but was helpful in overcoming the problems and hurdles that arose.

Within the Academy for Educational Development, we would like to acknowledge the support of Sharon Franz, Senior Vice President for Education and Exchange Services. She has been most supportive of the work of the National Institute for Work and Learning since we joined AED in 1988 and has been a valued colleague on issues of education reform and preparation of students for adulthood. We would also like to acknowledge the support of AED's contracting staff for their assistance with this project.

The overall study has been guided by a National Advisory Panel. These individuals have provided direction and advice on the issues to be explored, topics to be considered, and sites to study. We are indebted to each of them for their time, energy, and support. The National Advisory Panel comprises the following individuals:

Paul Barton
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Vice President
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A series of papers on critical issues was prepared as part of the project. We would like to thank the authors for their hard work and for the important perspectives that each brought to the school-to-work reform agenda. The authors and paper titles are:

Contextual Learning: A Critical Aspect of School-to-Work Transition Programs by Alexandra Weinbaum and Anne M. Rogers

Employers' Role in School-to-Work Opportunities by Patricia W. McNeil and Christine D. Kulick

Evaluating School-to-Work Transition by Margaret Terry Orr

Workplace Mentoring for Youth: Context, Issues, Strategies by Marc Freedman and Rachel Baker

School-to-Work Transition and Its Role in the Systemic Reform of Education by Regina Kyle

In Their Own Words: Student Perspectives on School-to-Work Opportunities by Kevin Hollenbeck

The Role of Parents in the School-to-Work Transition by William Rioux

School-to-Work Opportunities Through the Lens of Youth Development by R. Shepherd Zeldin

Role of Teachers in the School-to-Work Transition by Joan Whittemore Loock and Bryan D. Albrecht

Each of the case studies presented in Volume II has its own acknowledgments. However, it is important that we recognize each of the communities that allowed us to look at their school-to-work initiative through a microscope. These include: Mt. Edgecumbe High School (Sitka, AL), Student Career Opportunity Paths In Education (Veradale, WA), the Youth Transition Program (Eugene, OR), East San Gabriel Valley Regional Occupational Program (East San Gabriel, CA), the Graphics Arts Academy (Pasadena, CA), Roy High School (Roy, UT), Metro Tech Vocational Institute (Phoenix, AZ), Tiger Inc. (Rothsay, MN), Kalamazoo Valley Consortium Education for Employment Program (Kalamazoo, MI), Patterson Career Center (Dayton, OH), Shawnee High School Aviation Magnet (Louisville, KY), Baltimore Commonwealth (Baltimore, MD), Comprehensive Employment Work And Transition (Charlottesville, VA), and Performance-Based Diploma Program (Fort Pierce, FL). In addition to the case study sites, we would like thank all of the programs and communities that submitted information for consideration as case study sites.

The success of our national conference would not have been possible without the support and hard work of our collaborator, Jobs for the Future (JFF). This partnership resulted in a National Leadership Forum on School-to-Work that was attended by over 1500 individuals who benefited from the experience and expertise of a wide array of presenters. The conference covered policy as well as programmatic information, ending with an inspirational speech and choral presentation by the Capitol City Youth Choir of Washington, D.C. Hilary Pennington, President, Barbara Roche, Conference Coordinator, and the rest of the JFF staff were fun to work with and hard working colleagues throughout the planning process.

Finally, as director for the study, I would like to acknowledge the very hard work of the project staff. They are true professionals who have put in a great deal of time and energy making this project a success. I consider them all valued colleagues who have taught me as much as I hope they have learned from the project. Ending these acknowledgements with their names is fitting since the success of the study was dependent on their hard work and skills. The project staff include: Bryna Shore Fraser, associate director, Anne Rogers and Sue Hubbard, program officers, Richard Horne case study researcher, Scott Menzel, project assistant and case study researcher, Shawn Mural and Kim Crawford, project assistants, and Megan Ogilvie, project intern.

Ivan Charner
Project Director

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EXECUTIVE SUMMARY

With funding from the U.S. Department of Education, the Academy for Educational Development's National Institute for Work and Learning (AED/NIWL) undertook a four-year Study of School-to-Work Transition Education Reform supported by the U.S. Department of Education, Office of Educational Research and Improvement. The study focused on the planning, design, implementation, and impact of school-to-work transition reform initiatives. By documenting the design and integrity of exemplary programs and by assessing program experiences and impacts, the study offers critical lessons for those interested in adapting or adopting programs that effectively link schools with the business community to improve the transition from school to work. A number of activities were undertaken to carry out the study, including: a comprehensive review and synthesis of the state of the art on school-to-work transition; the commissioning of a series of papers on critical issues; the convening of a national conference; fourteen case studies of exemplary school-to-work transition reform initiatives; a cross-case comparison of the fourteen case studies; and the dissemination of diverse products to the research, policy, and education communities.

The United States is the only industrialized nation in the world that has no institutionalized school-to-work transition system to help its young people navigate successfully between their learning and work experiences. The lack of a comprehensive and effective school-to-work transition system has a serious impact on many students. It also means significant costs to business and our economy as a whole. A skill-deficient workforce hampers the nation's economic growth, productivity, and ability to compete in an international economy. In recognition of these problems, "school-to-work transition" has become the catch phrase for American education in the 1990s. Too often, however, this phrase is interpreted to mean that there should be one path taken by all young people directly from the classroom to the workplace. In practice, what was once the traditional route for most young people, completing school and then entering full-time employment, has given way to a variety of paths. Our use of the term "school-to-work transition" is intended to embrace this variety: young people who leave or complete high school and seek full-time work; those who enter the workforce and undertake employer-provided training; those who work and continue their education simultaneously; those who complete relatively new programs like academies or tech prep programs and then enter the full-time labor force or continue postsecondary education; those who remain in the labor force for several years and then return for postsecondary training; and finally, those who participate in high school programs that link education to work, regardless of whether the student is anticipating continued education or entry into the workplace.

The primary aim of the AED/NIWL study was to obtain firsthand information about exemplary instances of school-to-work transition reform. To accomplish this, AED/NIWL conducted case studies in fourteen communities across the United States. The research team sought to learn about the contexts in which reform occurred, its planning, design, implementation, and impact, especially on students. More specifically, the study focused on the following: contexts of reform, planning and design, structure of reform, implementation,

collaboration, student competencies, curriculum, resources, impacts, and outcomes. The fourteen case study sites were: Mt. Edgecumbe High School, Sitka, AL; Student Career Opportunity Paths In Education, Veradale, WA; Youth Transition Program, Eugene, OR; East San Gabriel Valley Regional Occupational Program, East San Gabriel, CA; Graphics Arts Academy, Pasadena, CA; Roy High School, Roy UT; Metro Tech Vocational Institute, Phoenix, AZ; Tiger Inc., Rothsay, MN; Kalamazoo Valley Consortium Education for Employment Program, Kalamazoo, MI; Patterson Career Center, Dayton, OH; Shawnee High School Aviation Magnet, Louisville, KY; Baltimore Commonwealth, Baltimore, MD; Comprehensive Employment Work And Transition, Charlottesville, VA; and Performance-Based Diploma Program, Fort Pierce, FL.

Through the individual case studies, we identified and documented best practices from which others could learn. The case studies describe the operation and impact of the school-to-work reform, drawing out the important components or pieces of each initiative. It was clear from what we heard at the sites and from our analyses of the cases that school-to-work is not a one-size-fits-all proposition.

Through the cross case analysis, twelve critical elements or building blocks of school-to-work system reform were identified. These are briefly described below.

Leadership from executives - Where school-to-work finds an advocate at the executive level, the reform is more likely to take root throughout the educational system. Where that advocacy is absent, school-to-work is likely to remain a tenuous and fragmented activity, however strong the support from other sectors. All of the communities visited by AED described the presence of leadership by educational system executives: principals of schools, superintendents of districts, and administrators of regional entities. Successful transition systems require executives who are able to develop a shared vision, clear goals, and a comprehensive strategy, enlisting the support and involvement of all stakeholders. Beyond vision and advocacy, these executives typically operate with a keen sense of politics, both in understanding the process and knowing the players. They are also willing to take risks and recognize that change demands time, mistakes, and a tolerance of failure.

Leadership from program deliverers - The category of program deliverers covers a variety of roles, including those of instructor, counselor, transition specialist, school-to-work coordinator, and others. Some delivery roles typically belong to certain positions--instructors usually provide classroom training, for example--but other roles, such as communication with business partners, may be delegated or shared in various ways. As managers, program deliverers must possess excellent organizational and communication skills. As reformers, they must have substantial knowledge of pedagogy, curriculum, the industry, and the student population. Whether their training is academic or experiential, effective program deliverers also understand youth development and learning theory, including the variety of learning styles and the stages of adolescent development. Effective program deliverers also have some

understanding, usually earned through actual experience in the industry, of the occupational area within which the school-to-work program provides training.

Professional development for teachers and staff - For any reform effort to take root successfully in a school system, practice in classrooms, counseling sessions, and administration must change. Professional development is one route that school-to-work initiatives adopt in order to engage school staff in the reform, ensuring that at least some will change their professional practice sufficiently to support the vision and strategies of the reform. The executive of the educational system must make professional development a priority for that school, district, or regional entity. Like so many aspects of school-to-work, professional development conflicts with standard school schedules and logistics, which can block the effort unless an administrator in a position of some authority clears the way.

Cross-sector collaboration - A school-to-work transition system is by definition dependent on effective collaboration among all of the stakeholders. The first step in developing a representative system is taking stock of the range of partners in a community. It is important to engage partners early in the process in order to foster a sense of empowerment and ability to influence the shape of the system. Effective long-term collaboration requires not only broad and inclusive recruitment, but also continuous nurturing of partnerships, so that all the partners recognize the rewards, risks, and long-term outcomes they can expect for themselves and, more importantly, for the students. Different partners are going to require different types of support or reassurances that the system will work for them. The goal of such extensive and carefully nurtured partnerships is an atmosphere of shared vision, beliefs, and, ultimately, resources.

Student self-determination - In order to help students prepare for a lifetime of learning, fulfilling work, and productive adult lives, school-to-work transition systems must support the development of self-determination in all students. Students should be encouraged to take responsibility for their learning, to understand and manage their career options, and to develop social skills and a maturity level that will help them interact positively with adults and peers. This is especially true for at-risk students, as the school system may be the only vehicle for them to learn how to cope with the complexities of adult life.

School-based curriculum and instruction - At the heart of school-to-work reform is a transformation of curriculum and instructional practice so that learning is "contextual," that is, learning that occurs in a real life context, or a close simulation of a real life context. Curriculum and instruction in transition systems must provide multiple points of connection between the experiences of work and learning. The successful school-to-work curriculum in some manner integrates demanding academic study with up-to-date

vocational instruction and work-readiness preparation. Whatever the classroom curriculum, it must connect in a rational and supportive way to the workplace learning experience, and in schools that have instituted articulation agreements, with that postsecondary curriculum as well. The measurement of learning that occurs in settings so unlike the traditional classroom requires assessment practices which are correspondingly different. Many school-to-work programs have drawn up comprehensive sets of competencies, often in consultation with business partners, which students in that program are expected to acquire, at certain minimum levels. Others have established comprehensive standards toward which all the programs within a school or district are expected to strive. Others have experimented with portfolio assessment as the most accurate way to document a student's education.

Work-based learning strategies - Successful transition systems offer a variety of work-based learning experiences, building on local labor market conditions and allowing for differences in student interest, aptitude, and developmental stage. Transition systems can include a menu of options such as business-based experiences, school-based enterprises, entrepreneurial programs, youth apprenticeships, mentorships, cooperative education, and service-learning. Programs also use a range of strategies--paid or unpaid work experiences, for five or fifty students, during the school day or after school, based in the school classroom or in a "community classroom"--with programs customized to fit the needs of youth, schools, business, and the local community. Regardless of which particular options or strategies a system utilizes, it must provide appropriate support services to students, staff, and business partners.

Integrated career information and guidance system - Another critical component for effective transition systems is the integration of career counseling into the system. In addition to career information, assessment, and guidance, many programs provide mentoring and personal counseling activities. These services are not appendages, but essential components of the system. Services must be ongoing, and each student should have an individual educational and career plan that is regularly updated. As part of the system, career counseling must link back into earlier grades: age-appropriate activities should start in elementary school. There must be multiple points at which counseling can occur, and it must be ongoing and consistently available to students. Equally important, the school's counseling system must tie into reliable, up-to-date labor market and job information sources.

Progressive system starting before grade 11 - Programs that do not start until eleventh grade will miss the chance to make a difference for many students. It is crucial to reach younger students before they become discouraged, disengaged, or drop out. Common sense and research both support the concept that a student who understands the connection between school and work--between lifelong learning and a successful life--will be much more motivated to succeed in school. Programs must take a

progressive, sequential approach that includes preparatory, age-appropriate "feeder" programs starting as early as elementary or middle school.

Postsecondary articulation - Just as an effective school-to-work system begins before eleventh grade, it also extends beyond high school graduation. Programs must provide multiple connections to postsecondary institutions, beginning when the student is still in high school and extending to provide post-high school education and training options. Articulation with postsecondary institutions while the student is in high school may take the form of dual/concurrent enrollment, college credit for high school courses, the acceptance by postsecondary institutions of alternative forms of assessment such as portfolios or certificates of mastery, or an agreement that the postsecondary institution will grant credit for alternative instruction such as work-based learning experiences. These arrangements at once greatly expand the training immediately available to high school students, and offer them a ladder of opportunity toward progressively more advanced training and advantageous employment after high school.

Creative financing - Obtaining seed money for reform in its early stages is almost always a critical element of school-to-work initiatives. Many initiatives have drawn on federal funding, including Perkins Act and other vocational and special populations grants. Where the state government has supported tech prep and related reforms, state funds have made a significant difference. In some states, funds for educational reform, including specific set-asides for school-to-work transition, have helped schools initiate school-to-work reforms. Business has provided funds, in-kind contributions, and human resources that have not only underwritten specific programs, but offered evidence of corporate support that often helps leverage additional support. Interagency agreements that allow education programs to draw on other governmental funds, particularly those set aside for employment and training or for special populations, have greatly benefitted school-to-work transition systems in several states.

Application of research - A number of the sites studied by AED consciously drew upon existing research, conducted their own research, or commissioned new research in order to plan, assess, or strengthen their school-to-work system. They made use of the research to provide a foundation for a program model; to assess the local labor market and economy; and to measure the impact of the program on students, specifically how their graduates fared in the worlds of work and postsecondary education. Using research in these ways also brought a number of secondary benefits, as the findings helped justify the school-to-work system, affirm to the staff the importance of their work, leverage additional resources for its support, and provide feedback that could be used to improve and refine different aspects of the reform initiative.

An educational reform that engages as many players and as many levels of the educational system as does school-to-work transition reform has the potential to achieve

significant outcomes for many people and institutions. AED/NIWL's study documented evidence of such outcomes for students, business partners, schools (from elementary grades through college), and other partners to the STW collaboration.

The genesis of the school-to-work movement was the widespread concern that students were leaving high school unprepared for work, lifelong learning, and citizenship. These undesirable "outcomes" remain the impetus behind the current movement. There is evidence from the findings that school-to-work is making a difference. A few sites in the study had gathered sound data concerning long-term student outcomes in the categories of employment, postsecondary education, and income, and evidence of connections between these circumstances and their secondary school STW experiences. These studies indicated that, a few years after graduation, STW graduates were more likely to be employed, more likely to access postsecondary training, and had higher incomes and professional standing than their peers who did not experience STW. The shorter term outcomes that were documented have value, both because of their intrinsic importance, and because they enable students to achieve the long-term outcomes that are the ultimate goal of STW. Short-term outcomes for students include skills and knowledge, career direction, motivation, and empowerment. Specific outcomes for students include: occupational skills development, "employability" skills, sense of career direction, career planning process skills, motivation, and personal empowerment.

Although STW reform is primarily intended to benefit students, the study found evidence of positive outcomes for business and industry as well. Businesses were pleased to have the immediate benefit of extra workers provided through STW internships. Some businesses also reported as a positive outcome the development of a better-trained pool of potential employees, who understood the industry and its needs. Enhanced presence in schools is also an important outcome for business. In addition, participation in STW provides an avenue for good public relations, giving business more visibility in the community.

School-to-work is an educational reform so profound that it literally transforms every aspect of schooling, at least at the secondary level -- curriculum, pedagogy, standards, assessment, scheduling, even the physical location for learning. Our study documented many outcomes for secondary schools resulting from the introduction of STW programs. One outcome is the introduction of new resources--usually brought about through business or other partnerships, sometimes through grants. A second outcome is opportunities for the professional development of instructional, counseling, and administrative staff. This in turn creates a more knowledgeable and a more motivated staff. Another outcome is a transformation of the school's career counseling system--its structure and process. The study uncovered different models, which, in contrast to traditional guidance counseling, depend upon individual student career and educational planning processes, continual assessment, and up-to-date labor market information, and do not emphasize application to traditional four-year college programs.

Less isolation of schools is yet another outcome of STW reform. Schools are brought into the community, and a variety of community partners are invited into the schools. A final outcome of STW reform is that it tends to reorient secondary school thinking towards a K-14+ concept. High school graduation is no longer the goal towards which all activity in the

school points; staff members are creating new articulation arrangements with postsecondary institutions, and helping their students plan their futures with the years after high school graduation in view. High school graduation and college admission have become steps in a lifelong learning process, rather than make-or-break hurdles.

Effective STW reform, like the pebble tossed into the pond, has a ripple effect that includes important outcomes for all the major players in the effort. Outcomes for students may be most crucial, but the system's survival is also influenced by how it affects the organizational partners.

The primary implication of the study for policy and practice is summarized in the twelve elements that we identified as critical building blocks of school-to-work systems. These elements should be incorporated into school-to-work practice, and policy makers should ensure that regulatory and other government activity supports their incorporation. Other policy implications are related to postsecondary systems, teacher training, employer incentives, parent involvement, and publicity. First, will be important for state postsecondary institutions to cooperate with state STW and K-12 systems around issues of alternative assessment, admissions requirements, and articulation agreements. Second, effective STW programs require pedagogical and curricular approaches that are not usually accorded much consideration in teacher training programs. Both pre-service and in-service teacher training will require reform in order to prepare instructors for the contextual, interactive, more flexible approaches demanded by STW programs.

Third, the study documented cases of business partners making important contributions to STW. Policy makers and practitioners cannot expect that businesses, especially those operating on a close margin of profit--as most do--will participate in STW out of altruism, however. Incentives, such as tax credits, should be devised to help businesses balance bottom-line demands with the desire to assist in the educational system. The basis of STW system building is partnership, yet the AED/NIWL study found one group of partners conspicuous by their absence: parents. It is crucial for policy makers and practitioners to devise and implement strategies to engage parents in school-to-work. Finally, we found a common need for more widespread and effective publicity about STW--locally, nationally, and at the state level.

The study's findings underscore a number of areas in which further research is needed in order to further clarify its impact of school-to-work reform on students, the impact on employers, the relative effectiveness of various reform strategies, the development of systems for school-to-work, and the implications for financing school-to-work systems. We are much more able now than we were several years ago to recommend more focused areas for future research.

First, additional long-term follow-up studies of student outcomes are needed, to learn more about the relative effectiveness of various approaches and to help system administrators strengthen local initiatives. Secondly, we recommend studies that consider student outcomes in youth development terms--such psychological and social characteristics as motivation, self-determination, responsibility for oneself and others. Thirdly, we recommend cognitive studies of the impact on students of "contextual learning" -- educational settings in which students

learn in real-world contexts, a basic aspect of school-to-work learning. These studies should compare and contrast the impact of different approaches: academies and student enterprises, for example. A fourth area suggested for research would be intensive case studies of students in workplaces over time. This approach would enable practitioners and policy makers to learn more about the relative effectiveness of different strategies for integrating learning into workplaces, more about the types of skills transmitted, more about the quality and clarity of assessment practices, and more about how students and their workplace supervisors perceive these experiences. A fifth area recommended for further research concerns access and equity of STW programs: studies of student tracking, equal educational and occupational opportunity, and sex role and racial stereotyping. A sixth area of research is analysis of the costs and benefits to students of working, both in terms of the impact of working while in school and perceptions of students who work. The debate concerning the pros and cons of combining work with schooling has continued for at least a decade. As work becomes an acceptable, even required aspect of the educational process for larger groups of students, including those planning to go to college, studies are needed that examine the impact of work on schooling (grades, attendance, test scores), social relationships, extracurricular and other activities, and use of alcohol and drugs. We also suggest research to examine how employers and postsecondary institutions perceive the impact of school-to-work experiences on students who arrive at their doors as workers or college students. Another area in which we recommend further case study research would be pedagogical and curricular changes, and their impact on student learning at different grade levels. Intensive case studies would enable researchers to focus on direct relationships between specific interventions and specific learning or developmental changes in students.

There is one area in which we strongly recommend further examination of effective strategies, and that is, parent involvement. The research literature provides ample evidence that students whose parents are engaged in their learning perform better in school. It also documents the steep drop off in parent involvement after elementary school. Given the tendency of many parents to emphasize college education to the exclusion of career preparation, parent involvement will be key to successful school-to-work systems. As this list of recommendations indicates, school-to-work is a field that offers many exciting areas for research, exciting because of the importance of the outcomes sought and because of the immediate opportunities for applying the findings of research in practical ways. In many cases, the research could have additional applications in broader areas, such as systems building and engaging parents in secondary education.

The School-to-Work Opportunities Act of 1994 offers a chance to bring together partnerships of employers, educators, and others to build an effective school-to-work system that prepares young people for either high-quality jobs or further education and training. While this study of school-to-work reform focused on programs that serve students who are entering the world of work after high school, the findings have important implications for those at the state and local level with the responsibility for school-to-work opportunities for <u>all</u> students under the act.

SUMMARY REVIEW OF LITERATURE

INTRODUCTION

The United States is the only industrialized nation in the world that has no institutionalized school-to-work transition system to help its young people navigate successfully between their learning and work experiences. And until relatively recently, little national attention has been paid to this serious disadvantage to both our youth and our society. Now, however, it seems that, just as the buzzwords for the 1980's were "school reform," the catchphrase for the 90's is the "school-to-work transition," one area that has been the focus of some school reform initiatives.

Current transition efforts are characterized by a direct linkage between school and subsequent employment and by the recognition that a multiplicity of institutions are involved in the school-to-work transition and must be players in any national policy (de Lone, 1991). Many of these efforts stress a broader role for business, both in responding to the needs of business and industry for well-prepared youth and in strengthening the instruction and preparation of youth for work. They also recognize the importance of including as core components a wide range of services that encompass academic skills, career guidance, work experience, and job preparedness and placement assistance.

The last five years have seen an enormous increase in the attention being focused on the transition in the substantive literature as well as the popular press. Much of this attention can be traced to the rapid pace of economic, political, and technological change that is occurring on local, national, and global levels. With the U.S. facing changing demographics, business' need for a more productive and competitive workforce, growing concern about the economic futures of many of our youth and the increasing strength of our international competitors, a flood of information has been released that relates to the school-to-work transition and what can be done to improve the process, especially for our young people who do not complete college in the traditional lock-step sequence (the traditional path being going directly from high school to further education and after completion of schooling entering the workforce).

Too often the phrase "school-to-work transition" implies that there is one direct path for all young people that leads them from the classroom into the workplace. In fact, what once may have been considered the traditional route for the majority of youth (completing school and then entering full-time employment) has given way to a series of variations that reflect more accurately the needs and condition of youth in our society today. Our use of the term "school-to-work transition" includes, in addition to young people leaving or completing high school and seeking full-time work, those who enter the workforce and go on to receive employer-provided training; those who work and continue their education simultaneously; those who complete relatively new programs like the Academies or tech-prep programs and then enter the full-time labor force or go on to continued postsecondary education; those who enter the labor force for a number of years and then return for additional postsecondary education or training; and finally, students who participate in a range of high school programs

that link education to work regardless of whether the student is anticipating continued education or entry into the workplace.

Our task in the state of the art literature review and annotated bibliography was to sort through the many publications dealing with the transition from school to work and, without duplicating the admirable work that has been done by others, synthesize the latest available information on programs and approaches relating to both the theory and practice of school-to-work transition as a part of school reform. School-to-work transition may in fact be driven by school reform or may drive some of the changes that are being incorporated as a part of restructuring efforts. The literature taken as a whole indicates a consensus that school-to-work transition cannot be accomplished as an activity separate from the school reform movement; it is an integral component in any effective reconfiguration of our current education system.

METHODOLOGY

AED conducted the state of the art literature review to provide a comprehensive information base on school-to-work transition programs and issues. The dual focus of the review highlighted cross-cutting issues surfacing from research and evaluation of theory and practice in the field, as well as review and evaluation of programs that fall under three types of school-to-work transition reform initiatives: programs that integrate work into learning experiences, curriculum links between academic and vocational disciplines, and transition, counseling, and information programs.

The review was guided by the overall project's conceptual framework (see Figure 1), which was used to identify major areas of interest and critical elements and relationships. The framework outlines the relationship among the community, the design and implementation of reform initiatives, and their effects on student and business/labor market outcomes. The first column of components reflects the community and institutional context under which reform initiatives take place. The second column represents the critical components in the design of school-to-work reform efforts. The third column includes the elements that need to be considered in implementation of reforms. The final column contains the anticipated and actual student, school, and business outcomes brought about by the reform initiatives. Changes in the outcomes result from the impact of the reform initiatives and any intervening factors.

We employed four methods of searching for relevant information. First, we analyzed AED's extensive in-house collection of reports, articles, and other information on school-to-work transition issues. Second, we targeted appropriate organizations and individuals, including our National Advisory Panel, and contacted them directly. Third, we utilized information from databases which abstract books and journal articles.
Fourth, we systematically reviewed recent relevant publications, journals, and conference programs and searched through the bibliographies.

Specific information sources we reviewed include the following:

- U.S. Department of Education sources, including the Office of Educational Research and Improvement and the National Diffusion Network;

- Other federal agencies, including the U.S. General Accounting Office's Human Resources Division and the U.S. Department of Labor's Employment and Training Administration and Bureau of Labor Statistics;

- School-to-work transition databases, including ERIC Clearinghouse on Adult, Career, and Vocational Education and the National Youth Employment Coalition Information Center;

- Current and past journal issues, including Employment and Training Reporter and Partners in Education Journal, Educational Leadership, and Vocational Training News;

- Publications, newsletters, and conference programs from appropriate Universities, including Cornell University Center for Advanced Human Resource Studies, New York State School of Industrial and Labor Relations, University of Illinois National Center for Research in Vocational Education, Ohio State University Center on Education and Training for Employment, University of California National Center for Research in Vocational Education, and Brandeis University Center for Human Resources;

- Publications, newsletters, and conference programs from other appropriate organizations, including Public/Private Ventures, Jobs for the Future, Institute on Education and the Economy, National Center on Education and Employment, Institute for Technological Solutions, The Business Roundtable, National Alliance of Business, Educational Testing Service, Council of Chief State School Officers, National Commission for Employment Policy, Education Resources Group, Education Writers Association, RAND Corporation, National Governors Association, Children's Defense Fund, American Association for School Administrators, National Youth Employment Coalition, The Conference Board, The William T. Grant Foundation Commission on Youth and America's Future, National Center on Education and the Economy; and

- Informal networking at organizational meetings and with individual educators, academics, and specialists.

The following steps were taken to implement the state of the art review:

1. Analysis of existing reviews and synthesis on school-to-work transition developed by AED.

2. Selection of broad topic areas related to school-to-work transition.

3. Identification of research and evaluation studies through other sources.

4. Development of a framework/outline for the review.

5. Abstracting of materials.

6. Preparation of draft state of the art review: including an annotated bibliography, detailed review, and synthesis (exemplary programs and cross-cutting issues).

ORGANIZATION OF THE REVIEW

The review is divided into nine sections:

A. The Context: The Impact of Economic, Political, and Technological Change

B. Core Transition Components and School Reform

C. Workforce Readiness

D. Articulation Between Academic and Vocational Skills

E Contextual Education

F. International Approaches to the School-to-Work Transition

G. Apprenticeship in the United States

H. Youth Work Experience in Naturally Occurring Jobs

I. School-Business Collaboration and Partnerships

Each section consists of an introduction that synthesizes the information contained in the annotated entries. The literature included in each section was chosen to represent the latest thinking and information available on the topic and to give a broad perspective on the range of views and related concerns. In some areas, a large number of documents necessitated our selecting just a sampling of the literature; in other areas, less information was available, reflecting a lack of relevant materials or the very recent nature of the attention being focused on the issue. A copy of the full annotated bibliography is included in Volume IV.

A. The Context: The Impact of Economic, Political, and Technological Change

Rapid changes in technology and increasing international competition have led employers to seek new strategies for producing goods and providing services. These changes

require a high performance organization where all workers have more responsibility and decision-making functions. Such organizations need employees who are well trained and possess the skills and knowledge necessary for their new functions. In addition, as learning becomes an integral part of the work itself, workers will need to be better prepared to avail themselves of training and learning opportunities in the workplace (National Center on Education and the Economy, 1990).

One challenge faced by educators and employers is how to prepare students for their changing roles in the workplace and how to ensure that the economy uses the full capacity and potential of our youth. At a point in our history when education beyond high school is increasingly viewed as necessary to meet the educational and skill requirements of many current and emerging careers, approximately one half of U.S. youth do not attend college and about half of those who do will not complete their studies. For many of these youth, particularly those who are members of the growing underclass, the transition between school and work has become problematic (U.S. GAO, 1990b). Many graduate high school with few or no job-related skills; often their academic preparation is weak.

Those who drop out before high school graduation, many of them caught up in an inescapable world of poverty, fare worse with even more limited job and career prospects. Until the age of 25, these youth are likely to move from job to job, usually in the service sector of the economy where they find jobs that are low-skilled, poorly paid, and offer few opportunities for further training or advancement.

The result for some young people is a life of poverty. For many others the prospect is employment that pays less than a living wage and offers neither self-respect nor a future (William T. Grant Foundation Commission on Work, Family, and Citizenship, 1988). Unemployment rates among all youth are high (twice that for adults) and not responsive to economic upturns. The official 1991 unemployment rate for high school graduates below the age of 24 was 13 percent for whites, 17 percent for Hispanics, and 29 percent for Blacks. In reality, these frighteningly high rates are probably even worse. If young people drop out of school, their prospects for not getting a job are one out of four, and their employment prospects do not improve with time.

Related to these employment patterns are the prospects for further training and career mobility. Employers tend to invest training dollars in their best educated employees. Only 45 percent of high school dropouts received training from their employers compared to 71 percent of high school graduates and 79 percent of college graduates (Vaughan and Berryman, 1989). Also, those who are trained on one job are more likely to be trained on subsequent jobs.

Recent attention to the "forgotten half" of students who do not follow the traditional high school to college sequence stems from changes in the economy and the inadequate response by schools, businesses, and government. A number of factors make the school-to-work transition issue critical at this time.

First, the changing demographics of the U.S. population find fewer young people and a general aging trend (U.S. DOL, 1989a). Second, a set of changes in the labor market suggests a shift from manufacturing to a service economy with the resulting reduction in low-level high-pay jobs in manufacturing and growth in low-skilled low-pay jobs in the service sector of the economy (Johnston and Packer, 1987). According to the U.S. General Accounting Office

(1992), while there is general agreement that the demographic make-up of the labor force will continue to change, critics differ on the likelihood of labor shortages and skill gaps. Johnston and Packer argue that there will be a need for higher order and technological skills for a growing number of jobs in all sectors of the economy. Others assert that labor shortages will be limited in scope and impact and that high-skill technical jobs will represent only four percent of all jobs by the year 2000.

Third, an increasing number of young people are "at-risk" of not becoming productive members of society. Finally, as the institutions of the family and community have changed dramatically, society once again has turned to the schools to carry out the transition process, an enormous role for which schools have not received the resources or the required training and which some critics view as a dangerous shift in the focus of attention away from "the nation's economic malaise." These critics argue that while our education system is in need of major improvement, business has done much to contribute to the American worker's lowered competitiveness and offers little in the way of an economic agenda aimed at absorbing the highly skilled workers it is demanding from the schools (Weisman, 1992).

B. Core Transition Components and School Reform

In many communities, transition programs are a part of major school reform and restructuring efforts. School-to-work transition may in fact be driven by school reform or may drive some of the changes that are being incorporated as a part of restructuring efforts. The literature taken as a whole indicates a consensus that school-to-work transition cannot be accomplished as an activity separate from the school reform movement. It is an integral component in any effective reconfiguration of our current education system.

There is a growing recognition that school reform requires the full commitment of all partners to systematically change the way we approach education in the U.S. Schools alone cannot be expected to develop effective strategies for providing young people with the knowledge, skills, and support they need to become creative and productive members of society. At the same time that educators have reached out to the community for advice and support, businesses have become aware that the local and national economic interest is increasingly at risk. Furthermore, the absence of an effective system to help non-college-bound youth make a smooth transition to the primary labor market has cost the U.S. socially and economically. Half of our young people are experiencing difficulties finding long-term, productive employment. Currently there is no system in place to help them access such opportunities. Charner (1990) suggests that such a system would comprise a set of services essential to an effective transition, including information on employment and career options, career counseling, oversight of student work experience, linkages to employers, and other essential services, similar to those offered in other countries. Byrne et al. (1992) point to the Quality Connection Consortium, initiated by the National Alliance for Business, as a school-to-work transition model where employers take direct responsibility for a portion of the educational enterprise.

The Council of Chief State School Officers (1991a) also views the improvement of transition connections between school and employment as a critical catalyst in the restructuring

of elementary and secondary education. The Council offers a set of nine principles for improving the preparation of youth for gainful employment and continued learning, and a set of ten actions which should be taken in each state to establish curriculums that promote a school-to-work system.

The National Center on Education and the Economy (1990) has received a great deal of public attention focusing on its recommendations which provide a framework for developing a high quality American education and training system, closely linked to high performance work organizations. The recommendations include: a national benchmarked educational performance standard for all students; state responsibility for students achieving Certificates of Initial Mastery; a comprehensive system of technical and professional certificates and associates degrees; incentives for employers to invest in further education and training for their workers; and a system of Employment and Training Boards to organize and oversee the proposed school-to-work transition programs and training systems. Recently, a series of bills have been introduced in the U.S. Congress that build on these recommendations for a national system.

Fraser and Charner (1993) recommend setting up local Community Youth Development Councils, with a satellite Office of Youth Transition Services in every high school. Because no single institution acting alone can address the education-work needs of youth and employers, these local collaborative councils would be responsible for overseeing the movement of all the community's young people between school and work or further education and training.

Another approach that has been advocated by the Director of the National Center for Research in Vocational Education is "high schools with character," which would include: the integration of academic and vocational studies; cooperative student learning; collegial work among teachers; and a special school identity, commonly established through an industrial connection (NCRVE, 1992a). This connection with a specific industry or corporation is similar to the Japanese connection between high schools and individual corporations. It is believed that a substantial number of students will perform better in such a program than in traditional college-prep programs and that such schools will be more relevant to the needs of our economy.

Waiting until high school to address the education-work needs of youth, however, may prove to be a costly mistake. Lacey (1988) and the Carnegie Council on Adolescent Development (1989) build a strong case for providing new school structures and supportive services as core program components for students in the middle grades. Without an early focus on such elements as counseling and health services to assist youth in overcoming difficulties, and without innovative delivery approaches such as case management, large numbers of our young people will not be able to become self-sufficient (Nightingale et al., 1991).

Bostingl (1992) posits that our schools no longer provide an opportunity for students to perform high-quality work. The primary issue is how to rethink the schooling process so that young people have greater opportunities to develop the self-direction and creative decision-making skills that are necessary for success in today's global economy. Finn (1992) argues that the chance to reform our schools may be squandered unless three promising educational

reform ideas are implemented: national school standards; exams keyed to those standards; and the use of exam results for college admission and employee selection.

The general consensus is that two problems are motivating the current restructuring movement--the educational system's poor performance and the changing nature of work and workers (McDonnell, 1989). How well restructuring transforms American education, improves student learning, and eases the school-to-work transition will depend in large measure on the sustained attention of parents, employers, trade unions, educators, churches, youth-serving agencies, community leaders, and local, state, and national authorities (William T. Grant Commission on Work, Family and Citizenship, 1988).

C. Workforce Readiness

With our nation's economic competitiveness sagging and our productivity levels not keeping pace with our international competitors, employers and policy makers have called for changes and improvements in how our schools prepare students (PEI Quarterly, 1991). In multiple surveys, employers point to inadequacies in academic skills and work readiness among workers, including the lack of integrity and of willingness to assume responsibility and work cooperatively. They also point to the increasing need for workers to be lifelong learners--a need generated by the increasing speed with which skills become obsolete and by the frequent changes in jobs that are typically made by workers during their lifetimes (one in five workers leave their jobs once every five years and younger workers even more often). According to the Committee for Economic Development, "Employers in both large and small businesses decry the lack of preparation for work among the nation's high school graduates. Too many students lack reading, writing, and appropriate behavior on the job. Nor have they learned how to learn, how to solve problems, make decisions, or set priorities" (quoted in Carlson, 1990). This view of young workers contributes to their poor prospects in the labor market as employers seek to hire older, more experienced workers, even for entry-level positions.

Yet students have correctly ascertained that there is little if any relationship between how well they do in school and how likely they are to get a high-skill, high-pay job, or even a job that pays good students more than their counterparts who do less well in school. Employers rarely bother to check the academic credentials of young job applicants, nor does the U.S. have an externally graded competency assessment system keyed to the secondary school curriculum, as do most other industrialized nations (Bishop, 1992). The U.S. Department of Labor Secretary's Commission on Achieving Necessary Skills (SCANS) recently made a start on developing such a system by identifying the five competencies that effective workers can productively use and the three-part foundation of skills and personal qualities that competence requires (U.S. DOL, 1991).

Other approaches to providing information on the skills employers need include the Employment Readiness Profile proposed by Barton (1989b) and the employability skills portfolio being piloted in the State of Michigan (Stemmer et al., 1992). All of these approaches are aimed at providing both students and employers with a set of useful, practical indicators of linkages between student competencies and achievements and their likely

performance as workers in a changing economy.

D. Articulation between Academic and Vocational Skills

For years, vocational education has been regarded as the traditional "dumping ground" for those students who were identified as not being suited to a curriculum of academic, college-oriented courses. According to Douglas (1992), the long history of competition and distrust between the academic and vocational sectors of schools succeeded only in embittering teachers and harming students. Today, the emphasis is increasingly being placed on integrating academic (theoretical) disciplines with more rigorous vocational (hands-on) courses for all students, but particularly for the large number of non-college-bound students. In the best of these programs, traditional academic and vocational offerings are complementary, with work activities used to help students learn English, math, and science, for example, while the classroom experience builds on and reinforces on-the-job learning.

A variety of innovative efforts are aimed at achieving such an integration between academic and vocational skills, including tech prep, cooperative education, academies, occupationally focused schools, and occupational clusters within schools. The 2+2 tech prep/associate degree program is currently being implemented in a number of states (Hull and Parnell, 1991). Tech prep links vocational education programs offered at the secondary and postsecondary levels, covering the last two years of high school and the first two years of postsecondary education. The four-year program combines a common core of learning and technical education, built on a foundation of basic proficiency in math, science, communications, and technology, all in an applied setting and subject to tests of excellence. The first phase of the program stresses career counseling and academic work and moves toward a more technical concentration at the postsecondary level. The student who completes the program earns a certificate or associate degree in a technical field. First introduced in Indiana in 1987, currently approximately 700 tech prep programs in 47 states allow students to link their high school studies with studies in both community and four-year colleges (Education Writers Association, 1992).

Kerka (1989) examines the findings from cooperative education as a model for school-work integration and finds that although it appears successful for students in the fields of engineering, business, and health, cooperative education remains a marginal program, lacking the scope, funding, and impact it needs to serve as a vehicle for workplace transformation. Grubb (1992) looks at three approaches that attempt to reshape both the academic and vocational components of the high school: academies, occupationally focused schools, and occupational clusters. Academies usually operate as schools-within-schools, existing in many occupational areas, and maintaining close relationships with businesses related to the core occupational area. Occupationally focused schools are usually magnet or focus schools with clear missions, separate organization, and social contracts that indicate the responsibilities of teachers, students, and parents. Every student in an occupational cluster chooses among clusters within a school rather than among schools. In each case, the traditional division between academic and vocational subjects has been bridged.

The general consensus seems to be that vocational education in this country is at a crossroads. Major restructuring is necessary to meet the future economic, social, and technological needs of the U.S., including a new vision of vocational education as an integrated and interrelated part of the overall education program for **all** students (Daggett, 1990). Achieving this goal will not be easy, given the years of historical distance between academic and vocational educators. Based on current information, however, the momentum seems to be growing for closer integration of academic and vocational skills for the benefit of all students.

E. Contextual Education

Current calls for contextual education are a reaction to the passing of the factory age as the dominant form of work organization, and the recognition that the mind/hand split needed on assembly lines is no longer useful in new workplaces. The emergence of these workplaces (albeit in a minority of American companies), the declining competitiveness of the American economy, and the complaints of employers about the poor preparation of many youth for work have fueled the search for new and better ways to educate young people. A further stimulus is the concern that young people lack motivation either to complete high school or to put forth effort while in school, with the absence of a school-to-work transition system adding to the students' perception that school is irrelevant to employment.

Recent reports of such groups as SCANS and the Commission on the Skills of the American Workforce, as well as the 1990 Amendments to the Carl Perkins Vocational Education Act, call for "contextualizing" education as the solution to some of the problems described above. However, what contextual education means and how this is to be accomplished remains to be worked out in districts and schools around the country. Many approaches to integration have already emerged, ranging from simply adding some vocational content to academic classes or vice versa, to organizing entire high schools around occupational clusters in which all teachers collaborate to develop a curriculum that prepares students for a wide range of careers. The following descriptions are of the major approaches to contextual education which are included in this bibliography.

Functional Context Literacy: Based largely on the research of cognitive psychologist Thomas Sticht and the literacy and reading research of Larry Mikulecky, the functional context approach focuses on understanding the vastly different forms that learning takes in classrooms and in workplaces, and on bringing workplace materials and literacy tasks into the classroom. Mikulecky emphasizes that students will perform better in workplaces if the types of reading materials used in workplaces are also used in the classroom (Mikulecky and Drew, 1988). Sticht emphasizes that because people always bring what they already know to the learning process-- learning should be "contextualized" to build on their experiences (Sticht and Mikulecky, 1984). Both Sticht and Mikulecky base curriculum on literacy and problem-solving in specific jobs as they are currently practiced and as they are defined by employers and employees.

Workplace and Community Ethnography on Literacy: This research has revealed complex literacy practices that are not taught in school and that do not translate into academic performance, yet serve the community and workers well (Lave, 1986; Scribner and Sachs, 1991). Studies by Shirley Brice Heath determining local literacy practices (the use of language, reading and writing in the community, and the differences between school and community literacy practices) were used in conjunction with local teachers to build on the literacy practices of the children and their communities. Elliot Wigginton's Foxfire classrooms utilize a similar approach, stressing a student-centered pedagogy that turns the planning and the execution of projects over to the students, thus preparing them for the higher level literacy, thinking, and social skills required in workplaces of the future.

Defining and Teaching Generic or Thinking Skills: Cognitive psychologists have argued that what schools fail to teach and what is most required in high performance workplaces are thinking skills--primarily metacognitive skills, or the ability to regulate one's own thinking. They have argued that teaching thinking skills should be the basis of the contextualized curriculum and that there is sufficient evidence from research to claim that thinking skills can be transferred from one setting to another if certain conditions are present--mainly a person's ability to recognize the similarity of situations (Adelman, 1989). One approach to teaching thinking skills is modeled on the components of traditional apprenticeship, where teachers model thinking skills by articulating how they think about various cognitive tasks (Berryman, 1989 and 1991). Gradually students are given more and more independence in executing similar tasks, until finally the entire task is turned over to them.

Motivation Theory: Most researchers acknowledge that one of the reasons for contextualizing education is to motivate students. Students form mental pictures of their futures from their knowledge and act accordingly. If employment is not part of that picture, or if the classroom seems unlikely to provide them with what they need to attain a job, then they are unlikely to have the motivation to participate actively in learning, or even to stay in school (Stasz, et al., 1990). Some researchers see the main purpose and benefit of contextualizing education as helping students who might otherwise be unmotivated to find reasons for learning. Classwork is linked to employment, and students can feel proud of the real products that they create.

Critical Pedagogy and Contextual Education: Another basis for contextual education is the preparation of students to participate in a democratic society. Within the literacy field, critical pedagogy draws on the work of Paulo Freire in Brazil, who taught literacy through scenarios--often drawings--of local conditions which revealed oppressive conditions in the lives of poor people (Freire, 1970). In learning the words to describe these situations, the people learned not only language skills, but how to read and therefore change the world. Glynda Hull demonstrates how the approach might be applied in a traditional vocational classroom in her ethnographic study of a vocational curriculum in a community college that prepared students for entry-level jobs in banking (Hull, 1991).

A Definition of Contextual Education

Is it possible to provide a definition of contextualized education from these varied theoretical roots and practices? There are elements that do cut across them, but there are also important differences which have implications for the missions of education, curriculum content, and pedagogy. The similarities might be summarized as follows: an agreement that people do not learn best through the present approach to curriculum and teaching characterized by the following: emphasis on decontextualized subject matter; teachers communicating knowledge to students through lectures, workbooks and review of texts; competition rather than cooperation among students; assumption that students must master simple subject matter before moving to more difficult topics; and the absence of tools in the classroom that facilitate work and problem-solving. Rather, the content of the curriculum as well as pedagogy should be changed to contextualize education, including:

- Simulating real work in the classroom by:
  - bringing in literacy materials from workplaces and other contexts to familiarize students with their use and form; and
  - structuring learning into projects that use complex thinking, technical, social, and literacy skills as they are used in workplaces.
- Training teachers to:
  - use "apprenticeship" approaches to teaching (by modeling, supporting and turning over tasks/projects to students);
  - build on what students already know;
  - encourage collaboration among students; and
  - develop assessments that document learning involved in the execution of complex tasks.
- Developing a curriculum that helps students achieve learning outcomes, such as those outlined in the SCANS report, rather than master traditional disciplines.

The degree of school reorganization necessitated by the different practices varies tremendously. Depending on how contextual education is defined, it can imply a total restructuring of schools and a rethinking of education or a minor tinkering with the curriculum. It is likely that in the near future all of the various approaches described above will be tried, and that all will call themselves "contextual education."

F. International Approaches to the School-to-Work Transition

The United States is not alone in its concern regarding the increasingly lengthy process that the transition from school to work has become. Many European countries are examining the "education-employment interface" and the problems faced by youth as a result of external economic forces (Reubens, 1988). One European educator, after observing both the American and European approaches to the transition, concluded that the U.S. and European countries have much to learn from each other and share a common need for better structures to link education, training, and businesses as well as new ways to articulate academic and vocational skills (Meijer, 1991).

The general consensus in the U.S., however, is that the European Community and Japan are far ahead of us in preparing their young people for the workplace and in helping them make the transition from school to work. They are credited in particular with providing better educational and employment opportunities for their disadvantaged youth. Public high schools in Japan, for example, enjoy an interlocking relationship with large private corporations and are much more involved in allocating students into the workforce than American high schools. In the Japanese system, students compete for jobs based on their grades, with their teachers making the initial selection, according to mutually agreed-upon standards (Pettersen, 1992; Rosenbaum, 1989). Such a system particularly helps students in the bottom half of their class, who are unlikely to enter postsecondary education.

The German dual apprenticeship system has long been proffered as a model for the United States, yet even its supporters caution that, for a variety of reasons, it is unlikely that an American version either would or should have great fidelity to the German model (Osterman, 1991). Adapting a form of the German apprenticeship system would provide the U.S. with a broader, more generic occupational training than traditional apprenticeship, combined with academic learning for all high school students. According to Hamilton (1987), the U.S. version would rely on supervised learning experiences in the workplace.

Another lesson provided by Germany, and more recently England, is the effort to maintain quality occupational training by testing and certification to meet national standards. This system is in contrast to the U.S., where certificates often certify only course completion and not necessarily the attainment of specific skill levels (U.S. GAO, 1990a). England and Australia's experiences in restructuring their youth education and training systems may offer models that are more instructive than Germany's for the United States. The British set up a system of employer-based training supported by employment subsidies, while the Australians focused on diversifying the upper secondary school curriculum, emphasizing improved teaching and assessment strategies without weakening the academic quality of the courses.

Of the two approaches, the British Youth Training Scheme was deemed unsuccessful, with little impact on the school curriculum and little coordination of credentials earned among employers and little articulation with the formal education system. The Australian effort, on the other hand, effected changes in the structure of basic education and increased high school graduation rates. It had the added benefit of generating new patterns of policy coordination among education, employment, and social security agencies and could serve as a model for U.S. state governments (Council of Chief State School Officers, 1991b; Vickers, 1991).

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G. Apprenticeship in the United States

During the 1970s, apprenticeship programs for the trades were established in high schools in eight demonstration sites around the country--currently involving about 1,500 students. Upon completion of high school, these students become registered apprentices. The programs are considered successful; however, their numbers, like the numbers involved in trade apprenticeships nationally (only 300,000), are very limited and are concentrated in the building trades.

Apprenticeships have now reemerged as a means of improving education, particularly, but not exclusively, for those students who do not go on to postsecondary education. At its simplest, the new American-style youth apprenticeship is a systematic mix of academic instruction in secondary and post-secondary schools with employment-based training of students at a level of quality sufficient to certify their ability to perform entry-level tasks in skilled occupations capably and professionally (Nothdurft, 1991).

The U.S. Department of Labor recently proposed a two-tiered strategy for raising the skill level of the nation's workforce by strengthening and preserving the traditional apprenticeship system while encouraging the expansion of structured work-based learning which incorporates the successful features of apprenticeship (U.S. DOL, 1989c). Through its Apprenticeship initiative, the Department of Labor is currently funding a series of school-to-work demonstration projects designed to help change the way students learn basic workplace skills by applying the principles behind the German system, particularly the use of workplaces as learning environments and the meaningful interrelation of learning and work (Hamilton and Hamilton, 1992). Each project involves work-based learning strategies that combine work and classroom learning to better prepare students for high-skill careers. In an effort to address the outdated blue-collar image traditionally associated with the term "apprenticeship," the National Alliance of Business has developed a training model which comprises the elements of apprenticeship but goes by the new term of "job performance learning," thereby hoping to attract businesses to utilize these programs to ensure a highly-skilled workforce (Berry, 1991).

Other youth apprenticeship and work-based learning programs have been established in communities across the country, including statewide efforts such as those in Michigan (Michigan Council on Vocational Education, 1990). The majority of these programs provide paid work experiences for students that structure learning into the work experience and use curriculum materials and instructional strategies that build on the students' work experiences. The essential elements that comprise successful youth apprenticeships have been delineated by Jobs for the Future (1991), as has the issue of the costs of such programs and approaches to covering these costs (Roditi, 1991).

H. Youth Work Experience in Naturally Occurring Jobs

Work experience for students takes two forms: school-sponsored education-work programs and part-time work experience obtained by students on their own (in naturally occurring jobs) with no school involvement. The review thus far has addressed the former - structured student work experiences that involve direct and indirect linkages or formal

relationships between the school and the workplace. The discussions under contextual education, international approaches to the transition, and apprenticeships all focused on establishing effective systemic links between schools and employers. It is well-known, however, and in some circles is a cause for concern, that most young people work in naturally occurring jobs that they find on their own while in high school (56 percent in 11th grade and 66 percent in 12th grade) (Charner and Fraser, 1987).

Many continue in these jobs after high school, generally in retail, food service, clerical, and unskilled manual work. Studies of youth employment suggest that while young people gain some skills from the jobs they hold while in high school and after graduation, these jobs are generally not tied to academic learning or to school programs, nor are they are linked to any career path. Despite the implication that there ought to be some way to more closely tie these work experiences in with their education, no one - not the schools, parents, or employers - is responsible for the massive movement of high school students into part-time employment which they arrange for themselves. As a result, many of these working students lack a sense of career direction and see work as successive short-term jobs, not in terms of careers (Charner and Fraser, 1987). The jobs that might have enormous potential for education-work experience, with advantages to both students and employers, are largely being wasted.

Stern and Nakata (1989) uncovered considerable variation in the qualitative jobs held by working students. Significantly, the degree to which the job gave the student the opportunity to use and develop valuable skills was positively associated with job market success for the three years after high school graduation. They also found that students with more complex jobs may develop a greater capacity for learning on the job, a skill that employers stress as critical in an ever-changing work environment. Whether this was due to the capacity of the particular student worker or the nature of the job, however, was not clear, and the implications for policy could not be ascertained. Barton (1989a) and Hotchkiss (1986) found no cause for concern regarding possible negative effects of working during high school.

Mortimer and Yamoor (1987) felt that most part-time jobs held by young people are "far from optimal" for adolescent development. Other studies have found a range of negative correlates of working long hours during the school year, including diminished attachment to and lowered performance in school, higher levels of drug and alcohol use, delinquency, and weakened parental authority (Steinberg and Dornbusch, 1991; Mortimer and Finch, 1986). Yasuda (1990) found a strong negative relationship between the number of hours worked during school and self-reported grades.

Until more complete, longitudinal data are available, the debate over the effects of young people working while in school will continue. The literature points out that whatever the effects, educators and employers must create mechanisms for jointly promoting the long-term economic benefits of education while encouraging productive, developmentally appropriate work by young people.

I. School-Business Collaboration and Partnerships

One highly publicized outgrowth of school reform efforts has been the proliferation of

joint efforts between businesses and educational institutions. The National Alliance of Business and National Association of Partners in Education are two of the groups that are trying to track the hundreds--perhaps thousands--of collaborative ventures that are in place across the U.S. They range from relatively simple individual projects (e.g. donation of equipment) through the popular Adopt-A-School programs, to highly complex, multi-agency communitywide collaboratives like the Boston Compact, developed in 1975 and frequently referred to as the "mother" of all community collaboratives.

Using the Boston Compact as an illustrative case study, Grobe et al. (1990) define the nature and benefits of partnerships and lay out six categories of partnerships: special services, the classroom, teacher training and development, management, systemic educational improvement, and policy. Similarly, the National Alliance of Business (1989) identifies five components of educational restructuring in which business has a collaborative role, as well as the five functional areas in which business' knowledge and experience can assist educators: management analysis and improvement; advocacy; staff development; research and development; and the application of new technology. Bailey (1989) points to Chicago's Leadership for Quality Education as an example of a new breed of business partnerships in which companies combine philanthropy with hardball politics to seek school reform.

Although all of these types of partnerships are growing in number and sophistication, it is unclear how effective they are in the short run and what the long-term effects are likely to be, even with such well-known projects as the Boston Compact. CSR and Meridian Corporation (1991) provide specific examples of activities that develop and strengthen local partnerships and discuss the lessons that have been learned thus far about effective strategies for linking work and learning. Lacey and Kingsley (1988) offer guidelines for working partnerships based on the experiences of 21 Partnership Projects sponsored by the Edna McConnell Clark Foundation, which focus on increasing the employability of economically disadvantaged young people before they drop out of school. Inger (1990) reports on the rationale for a community-based strategic planning effort for the work-related education system in the Pittsburgh metropolitan area, summarizes the lessons learned, and recommends actions to improve the functioning of such a system, including regional leadership, performance indicators, testing and counseling, and collaborative program development.

On the negative side, Miron and Wimpelberg (1989) reach the pessimistic conclusion that most of the investments made in the partnerships that they studied may merely compensate for meager tax bases in urban systems and therefore are not likely to lead to real innovation or reform in those systems that need the most change. Despite this bleak assessment, the literature points very specifically to business' interest in becoming more involved in education. As Doyle (1989) forthrightly states in a Business Week supplement devoted to business-education partnerships, business is interested today because long-term profitability depends on education as the foundation of America's ability to compete in a changing world economy.

CONCLUSION

The burgeoning literature on the issues and concerns relating to the school-to-work transition is an encouraging sign that serious attention is being paid to the need for development

and coordination of strategies to help our young people find their way through the current maze of disconnected, uncoordinated transition services. Policymakers on the national, state, and local levels are recognizing that, while we generally do a good job of helping our young people who complete their postsecondary education or training directly after high school, we have been doing a poor job of educating and preparing those who do not. The unemployment rate for these young people remains discouragingly high, deeply rooted in converging social and economic trends noted in many of the annotations that follow, including reduced family support, slower economic growth, changes in the composition and organization of work, and a marketplace where global forces dictate direction.

The evidence increasingly supports the consensus that the United States has not kept pace with overseas competition at least in part because of our past failure to develop young people's capacities and help them make the critical transition from education to employment. The good news is that schools and employers, together with government and community agencies, are beginning to come together to develop effective school-to-work transition strategies. The documents contained in this annotated bibliography will hopefully serve as a sufficient base of information on the issues and topics related to school reform for youth transition to provide guidance and direction on the nature, quality, and impact of youth transition as a part of ongoing school reform.

STUDY AIMS AND STUDY QUESTIONS

The purpose of this study was to provide extensive information on the nature and impact of school-to-work transition reform initiatives, providing critical lessons learned from model programs so that others could adapt these exemplary systems and strategies to their local circumstances and conditions. The major research questions that were examined focused on the planning and design, implementation, and impact of school-to-work transition reforms. A number of activities were undertaken to carry out the study, including: a comprehensive review and synthesis of the state of the art on school-to-work transitions; the commissioning of a series of papers on critical issues; the convening of a national conference; fourteen case studies of exemplary school-to-work transition reform initiatives; a cross-case comparison of the fourteen case studies; and the dissemination of diverse products to the research, policy, and educational communities.

The primary aim of the study was to obtain firsthand information about exemplary instances of school-to-work transition reform. To accomplish this, AED/NIWL conducted case studies in fourteen communities across the United States. The research team sought to learn about the contexts in which reform occurred, its planning and design, implementation, and impact, especially on students. More specifically, the study focused on the following.

Contexts of reform:

- student population served
- previous school-to-work transition programs
- major characteristics of the local labor market
- rates and patterns of employment among local populations
- current economic climate and significant trends
- political and social climate
- demographic trends

Planning and design

- process of designing the reform
- process of planning academic, work, transition/information components
- basis of the reform design in research
- target group of reform
- identity of key players and their roles
- representation of business interests
- representation of school interests
- representation of youth-serving organizations
- representation of employment and training programs
- representation of parents
- representation of students
- impact of planning process on program design

Structure of reform
- overall purpose
- specific goals
- key components
- relationship of goals to components
- organizational structure
- management
- staffing
- numbers and characteristics of students served
- ways the reform differs from previous practice
- roles played by business, schools, employment and training programs, youth-serving agencies

Implementation
- principal incentives
- major barriers
- strategies for addressing barriers

Collaboration
- process of initiating cooperation between business and schools
- nature of collaboration in implementation
- other organizations party to the collaboration

Student competencies
- knowledge and skills required of students
- process for developing these standards
- process for assessing students

Curriculum
- scope and content of curriculum
- academic, vocational, and transition elements, and their interrelationship
- process of developing the curriculum
- curriculum development roles of schools, employers, students, parents
- pedagogy

Resources
- extra funds obtained for the reform
- other resources required to implement the program
- application of research and other information in implementing the reform

Impact and outcomes
- process for assessing the impact of the reform
- process for assessing academic knowledge and job-related skills
- process for developing the assessment strategies
- impact of the reform on student academic performance and employment

impact of the reform on schools
impact of the reform on business
impact of the reform on other collaborating organizations

CASE STUDY SUMMARIES

SITKA, ALASKA: *Mt. Edgecumbe High School (MEHS)*

Mt. Edgecumbe High School offers an unusual example of a school preparing students for a dynamic global economy. Because MEHS is Alaska's only public residential school, students come from all over the state and represent many different ethnic groups. MEHS classes reflect Alaska's close ties to the Pacific Rim, and emphasize the development of entrepreneurial skills. Because Alaska's geography requires distance learning, administrators have identified technology as the future of work and learning and invested substantially in equipment and training to ensure that students are able to hook into computer networks and operate sophisticated equipment. Above all, because success in the future requires the ability to change, adapt, and engage in critical thinking, MEHS helps students develop self-determination skills and engage in a process of critical review and evaluation. The process is guided by the business-derived principles of Total Quality Management and MEHS's own Continuous Improvement Process.

Key features:

- emphasis on entrepreneurship, critical thinking, technology, and Pacific Rim studies
- engagement of students and staff in school restructuring
- creative ties to global economy

PHOENIX, ARIZONA: *Metro Tech Vocational Institute*

The defining fact of life for Metro Tech is its students, about one-third of whom have dropped out of school or never attended high school at all. They face many barriers to completing their education, ranging from poverty and illiteracy to single parenthood. In response, Metro Tech has responded with a school-to-work initiative that is not a single innovation, but rather a collection of elements held together by a vision for accomplishing fundamental school reform within a vocational school. These elements include curriculum integration, campus-based student enterprises, work-based internships, and technology-based instruction. Metro Tech has a history of long-term partnerships with such major businesses as Honeywell Commercial Systems Flight Group, AAA of Arizona, Big 4 Restaurants, and Goodwill Industries, which have made extraordinary contributions to the school and its students.

Key Features:

- academic and vocational integration
- technology-based instruction
- campus-based enterprises

EAST SAN GABRIEL, CALIFORNIA: *East San Gabriel Valley Regional Occupational Program (ESGVROP)*

Serving many minority and poor students in an area threatened by gangs, the East San Gabriel Valley Regional Occupational Program (ESGVROP) is an outstanding example of an urban school system rising to the challenge. ESGVROP provides vocational, academic, and support services to prepare students to continue their education or obtain employment after high school. Emphasizing active collaboration, ESGVROP cultivates partnerships with businesses,

service agencies, and other educational institutions. Business partners serve on advisory committees, provide labor market data, serve as mentors and job coaches, and provide classrooms for worksite training. Classes are articulated with postsecondary institutions, in some cases through baccalaureate programs. Administrators and staff of ESGVROP strive for flexibility in arranging transportation and schedules and providing other support services. An emphasis on research conducted in collaboration with other educational institutions drives the development of ESGVROP programs.

Key features:
- more than 300 collaborative partnerships with business and community
- articulation with several postsecondary institutions
- reliance on research and program assessment

PASADENA, CALIFORNIA: *Graphic Arts Academy*

To the north of Los Angeles, Pasadena High School educates a multicultural population whose diversity reflects the changing face of the United States in the 21st century. The Graphic Arts Academy is a school-within-a-school, serving about 100 students in grades 10-12. The Academy resulted from a partnership between the high school and the Printing Industry Association of Southern California, which represents more than 1900 printing businesses in the greater L.A. area. A team of five teachers is responsible for the integrated curriculum, which combines academic instruction with vocational training in classes deliberately kept smaller than regular high school courses, allowing for more cooperative learning and student-teacher interaction. Sophomores and juniors take almost all their course work within the academy; as seniors, they take advanced courses at Pasadena City College.

Key Features:
- academy model
- academic and vocational integration
- active partnership with industry association

FORT PIERCE, FLORIDA: *Performance-Based Diploma Program*

Situated in Fort Pierce, Florida, the Performance-Based Diploma Program enrolls students from throughout St. Lucie County who are considered at risk of dropping out. Designed as a school-within-a-school, the program is a self-paced mastery learning program. Students master academics through a computer-assisted instruction (CAI) program. Instructional leadership is crucial, for although the computer provides the lessons, teachers must be able to help any student in a classroom of 30 pursuing 30 different lessons. For vocational study, students choose from traditional high school vocational classes, a dual enrollment program at the community college, an internship program, or employment at a job they find on their own. All students participate in individual and small group peer counseling.

Key Features:
- self-paced mastery learning
- school-within-a-school
- options for vocational study

LOUISVILLE, KENTUCKY: *Shawnee High School's Aviation Magnet*

Flying planes, arranging travel reservations, calculating complex flight patterns and time zones, running a cruise ship, and repairing complicated technical equipment--this is all in a day's work for students at Shawnee High School's Aviation Magnet. Within the two strands of Aviation and Travel & Tourism, students actively engage in learning the concepts of their chosen industry, couched in practical examples and the real-life experience of instructors and students. In the Aviation program, students participate in flight training and can earn a Federal Aviation Administration Certified Pilot's License or Federal Communications Commission License by the time they graduate. Students in Travel & Tourism participate in domestic and international internships in which they study and are responsible for all aspects of hotel, travel agency, and cruise operations.

Key features:
- magnet program
- active partnership with major area industry and local employers
- interdisciplinary curriculum

BALTIMORE, MARYLAND: *Baltimore Commonwealth*

The Baltimore Commonwealth is an unusual partnership through which the city's business, education, community, and government sectors have joined forces to try to improve the prospects of Baltimore's high school students for academic achievement, college opportunities, employability, and personal development. Baltimore's Office of Employment Development has created a one-stop shop for student services and for businesses interested in employing students. Under the aegis of the Commonwealth, an array of programs and services is provided, ranging from internships to summer jobs to permanent employment, from career exploration to job readiness skills preparation. Career Clubs for seniors, offered during the school day at high schools, provide career counseling and coaching to students on specific job-getting and job-keeping skills.

Key features:
- city's Office of Employment Development plays key role
- career clubs for seniors
- emphasis on marketing to business partners

KALAMAZOO, MICHIGAN: *Kalamazoo Valley Consortium Education for Employment Program (EFE)*

A county-wide consortium, EFE coordinates a system of occupational education throughout Kalamazoo County, an area that includes 1.7 million students and nine school districts. The EFE's mission is to provide all students with opportunities to obtain basic educational skills, occupational skills, and employability skills. The system consists of more than twenty occupational programs, several worksite-based occupational programs, counseling and information services, and articulation agreements. The EFE has successful partnerships with major businesses such as the Radisson Hotel and two local hospitals, which have provided facilities for work-site based occupational programs. Kalamazoo Valley Community College is a full member of the consortium. The system has its own staff: an assistant superintendent, three area administrators, and several vocational counselors and workforce entry coordinators.

Key features:

- county-wide system based upon a decade of K-14 collaboration
- network of administrators and workforce entry coordinators
- worksite-based occupational programs

ROTHSAY, MINNESOTA: *Tiger, Inc.*

The rural town of Rothsay, Minnesota boasts a population of 450, harsh winters, a lagging economy--and an innovative high school which addresses these issues and prepares its students for work in creative ways. Rothsay High School's strength lies in its ability to adapt to challenging economic circumstances and prepare its students to do the same. Supported by a faculty advisor, students in Rothsay High School formed a corporation, Tiger, Inc., in 1991. Tiger, Inc.'s first enterprise was in response to community need: they took over the town's failing grocery store. Rothsay students receive credit for their work with Tiger, Inc. and for staffing the grocery store and the Rothsay hardware store in capacities such as accounting, advertising, office work, and carpentry. Rothsay students also host an entrepreneurial workshop for students and educators from across Minnesota. Teachers attempt to integrate vocational and academic study, teaching specific work skills as well as exploring careers.

Key features:

- student-run enterprises
- offers work experience despite a limited economy
- informal but powerful community ties

DAYTON, OHIO: *Patterson Career Center*

Originating in 1913 as one of the first cooperative education centers in the United States, the Patterson Career Center today tackles the many serious problems that confront urban school systems. Patterson strives to offer its students, 82% of whom are disadvantaged, a variety of options in an administrative structure that promotes participatory management within a broader restructuring process. Working closely with local employers and the community college, Patterson Cooperative High School offers 11th- and 12th-grade students a schedule that alternates two weeks of classroom instruction with two weeks of full-time work at the job site in an eleven-

month school year. Teams of academic and vocational instructors hold regularly scheduled "cluster" meetings several times a week to assure that academic and vocational components are integrated.

Key features:
- administrative flexibility
- alternating academic and work experience
- strong long-term ties with local community college and local employers

EUGENE, OREGON: *Youth Transition Program (YTP)*

Policy makers and practitioners across the country agree that the creation of a seamless school-to-work system for youth requires restructuring systems, but Oregon is one of the few states that has begun restructuring on a statewide level. Oregon's Youth Transition Program is a collaborative effort among the Oregon Department of Education, Oregon Vocational Rehabilitation Division, University of Oregon, and public schools in local communities across the state. YTP currently operates in 26 sites across Oregon, helping youth with disabilities make the transition from school to work. YTP aims to provide a "new pattern of services" to students with disabilities by achieving two goals: enhancing the ability of students to enter competitive employment after leaving school, and creating systemic change within schools and agencies serving students with disabilities.

Key features:
- statewide program building on extensive interagency collaboration and resource redistribution
- focus on students with disabilities with wider application for all students
- instruction in academic, vocational, independent living, and personal/social areas

ROY, UTAH: *Roy High School*

Options are almost unlimited for students at Roy High School. Because Roy is part of a state-level reform effort, administrators are able to develop flexible schedules for students, resulting in early graduation, innovative use of credits, and articulation with postsecondary institutions. The core of Roy's innovation lies in its comprehensive counseling and guidance program, which culminates in a Student Education and Occupational Plan (SEOP) individually crafted for each student. SEOP sessions, held with students and their parents several times a year, involve a process of career exploration, self-awareness, career choice, and identification of an appropriate course of study. Students learn more about their options through extensive counseling, a career center with computer accessibility throughout the school, a workplace skills course, and assistance from the local job services agency. Students must meet standards in communication, critical/creative thinking, social and personal development, self-motivation and adaptability, and preparation for life after high school.

Key features:
- comprehensive guidance and counseling program
- individual Student Educational and Occupational Plans
- early graduation and expanded day, week, and year courses

CHARLOTTESVILLE, VIRGINIA: *Comprehensive Employment Work And Transition*

Based in Charlottesville High School in Virginia, CEWAT was initially created to help students with disabilities find paid job placements and develop good work behaviors, but is undergoing its own transition as it expands its services to at-risk students. Through a partnership between the school and a private nonprofit employment and training agency, CEWAT provides employment specialists who work with students to help them identify job prospects, apply for employment, and negotiate any difficulties that arise after they are hired. A network of employers, including a university dining service, grocery chain, and nursing home have hired students through CEWAT. CEWAT also connects students to assessment services provided by the state Rehabilitation Services Administration and to skills training provided by the vocational-technical center. The process of developing Individual Education Plans (IEPs) for students with disabilities now includes planning for transition to work.

Key features:
- school partnership with a private nonprofit employment and training agency
- support system of job coaches and school-based coordinator
- IEPs that incorporate transition planning

VERADALE, WASHINGTON: *Student Career Opportunity Paths In Education (SCOPE)*

At Central Valley High School, half an hour from downtown Spokane, Washington, all students take part in SCOPE, a comprehensive career information and guidance program designed to get students thinking about possible careers before they begin high school. Through inventories of their interests, experiences, and skills, students identify with one of six career paths, each of which contains many career options. Students can then access both printed and computerized information about the education they would need to pursue a specific career. Equally fundamental to SCOPE is the infusion throughout the school curriculum of career-related activities, ranging from research assignments, to speakers, to work experiences. The school hired an experienced local business leader to arrange community placements to provide students with career experience.

Key features:
- career information, assessment, and guidance system
- career-related activities infused across the curriculum
- community resources coordinator.

CROSS-SITE ANALYSIS

LEARNING FROM EXPERIENCE: A CROSS-CASE COMPARISON OF SCHOOL-TO-WORK TRANSITION REFORM INITIATIVES

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I. INTRODUCTION

The purpose of this report is to help practitioners, policy makers, and program developers create sound systems for school-to-work transition. Its approach to doing so is two-fold: (1) presenting an analysis of how school-to-work reform affects its clients and participants, and (2) describing a set of twelve "critical elements" that our research indicates are essential to any sound school-to-work system. These findings are based on lessons learned from a series of case studies conducted by the Academy for Educational Development (AED) in fourteen communities across the United States, part of a four-year national study of school-to-work transition reform, funded by the U.S. Department of Education's Office of Educational Research and Improvement (OERI). As part of that study, we undertook to discover and describe exemplary instances of reform: cities, suburbs, and rural communities creating new systems with the common intent of changing how high schools educate in order to improve the prospects young people face after high school. We sought out variety: different models of change, different kinds of communities, different emphases in approach.

In the end we selected fourteen communities for case studies. For those who believe in school-to-work reform, their variety is exciting, for it confirms that ingenuity and commitment will create many paths towards the same broad purpose. We saw examples of career academies, statewide and regional systems, school-based enterprises and off-site work places, systems that emphasize career guidance and others that emphasize the integration of academic and vocational study.

One purpose of national studies of school reform is to explore what difference the reform has made, to students, but also to educational institutions and other partners in the reform. The AED/NIWL study discovered a wealth of positive outcomes for students, schools, businesses, colleges, and other community partners. We offer these in section III of this report, to affirm the practical benefits of the school-to-work strategy, but also to offer our readers evidence with which to advocate for the introduction of school-to-work reform.

Another purpose of studies such as this one is to identify best practices from which others may learn, through study and comparison of existing models. Yet those with whom we met often cautioned that to transfer any model wholesale from one community to another without major adjustments is a recipe for failure. As Richard De Lone (1990) observes in his study of model replication, this "cookie-cutter" approach to replication resembles franchising in the private sector, and features well-defined program models, detailed implementation plans, and specified components.

At the other end of the continuum, replication strategies allow for greater local adaptation, require less fidelity to the original model, and encourage more creativity in its reproduction. As the authors of the School-to-Work Act of 1994 understood, school-to-work reform, by definition, requires more flexible replication strategies. School-to-work is not a one-size-fits-all proposition. Local circumstances--including but not limited to the labor market, business base, school infrastructure, and personalities--require flexibility of those who hope to create a school-to-work system in any locality. Implementing school-to-work reform requires that reformers study a range of options, consider what transition pieces already exist, weigh local resources and barriers, and assemble a new combination of vision and programmatic pieces that, one hopes, will eventually evolve into a system.

So rather than select one or more models to recommend as the best practice for school-to-work, this report identifies "critical elements" or "building blocks" that appear to be essential to any sound school-to-work system. Our hope is that doing so will help practitioners, "architects" of school-to-work at both local and state levels, assemble these building blocks into new or reformed systems that make sense for local circumstances.

The next section of this report explains the research methodology, including the selection of the fourteen communities and an explanation of cross-case analysis. The main body of the report follows, an analysis of critical elements that explains each element and offers several instances of its implementation. In analyzing the elements, we attempt to depict the breadth and complexity of each. In describing how several communities have implemented that element, we try to capture the creativity and comprehensiveness of their approaches. The report concludes with a discussion of the implications of our findings for future practice and research.

II. METHODOLOGY

Case Studies

In order to obtain firsthand information about models of school-to-work transition reform, AED conducted case studies in fourteen communities across the United States. Preparation for the case studies required four major activities: interview protocol development, review of documents and materials, staff training, and site selection. Semi-structured, open-ended interview protocols were developed to guide the interviews and focus groups, and observation guides to document activities and events observed by the research team. The research team for each site visit analyzed the field work notes, using the principle of data triangulation to ensure that every finding was affirmed by more than one source.

The major research questions that guided the study focused on the nature and impact of school-to-work transition reform initiatives. The research team sought to learn about the contexts in which reform occurred, its planning and design, implementation, and impact, especially on students:

Contexts of reform:
- student population served
- previous school-to-work transition programs
- major characteristics of the local labor market
- rates and patterns of employment among local populations
- current economic climate and significant trends
- political and social climate
- demographic trends

Planning and design
- process of designing the reform
- process of planning academic, work, transition/information components
- basis of the reform design in research
- target group of reform
- identity of key players and their roles
- representation of business interests
- representation of school interests
- representation of youth-serving organizations
- representation of employment and training programs
- representation of parents
- representation of students
- impact of planning process on program design

Structure of reform
- overall purpose
- specific goals
- key components
- relationship of goals to components
- organizational structure

management
staffing
numbers and characteristics of students served
ways the reform differs from previous practice
roles played by business, schools, employment and training programs, youth-serving agencies

Implementation
- principal incentives
- major barriers
- strategies for addressing barriers

Structure of program
- organizational structure
- management
- staffing
- numbers and characteristics of students served

Collaboration
- process of initiating cooperation between business and schools
- nature of collaboration in implementation
- other organizations party to the collaboration

Student competencies
- knowledge and skills required of students
- process for developing these standards
- process for assessing students

Curriculum
- scope and content of curriculum
- academic, vocational, and transition elements, and their interrelationship
- process of developing the curriculum
- curriculum development roles of schools, employers, students, parents
- pedagogy

Resources
- extra funds obtained for the reform
- other resources required to implement the program
- application of research and other information in implementing the reform

Impact and outcomes
- process for assessing the impact of the reform
- process for assessing academic knowledge and job-related skills
- process for developing the assessment strategies
- impact of the reform on student academic performance and employment

impact of the reform on schools
impact of the reform on business
impact of the reform on other collaborating organizations

The focus of each case study was a four-to-five-day site visit by a two-person case study team. In order to gain a complete perspective, we collected similar information from multiple sources and used multiple collection strategies. While visiting each community, the teams interviewed individuals, conducted focus groups and group interviews, observed aspects of the initiatives in action, and, where possible, gathered existing data describing or assessing the impact of the initiative on students. Each team interviewed individual representatives of business, school districts, high schools, postsecondary institutions, and local agencies, as well as with students, instructors, administrators, counselors, and parents. (Every team met with representatives of every category, although the position of those interviewed might vary. For example, teams interviewed high school principals, district superintendents, and/or deputy district or school administrators at every site. Teams interviewed postsecondary representatives at all the sites articulated with a college or university, but depending on the site, these individuals might be tech prep coordinators, deans for continuing education, assistants to the president, department chairs, even the president.) Every team also conducted focus groups, usually parent focus groups and student focus groups, and occasionally, groups of service providers (i.e. counselors, teachers) as well. Teams devoted extensive amounts of time to observation in a variety of classrooms, worksites, and meetings of advisory groups and executive councils. The documents collected include curriculum samples, program reports, student career guidance materials, portfolio and competency rating samples, local newspaper and newsletter clippings, meeting minutes, internal memoranda, internal evaluation reports, and statistical summaries.

Site Selection

In selecting fourteen communities, AED sought out school-to-work programs that were different and somewhat innovative. We looked for evidence of reform both in curriculum and in delivery of education, including the location and scheduling of learning. Ultimately, we hoped that an examination of exemplary programs would lead us to the elements that compose effective systems for school-to-work transition.

Initially, the research team cast the net for nominations broadly, reviewing the school-to-work literature and soliciting recommendations from a wide range of individuals, including the project advisory group and OERI study group. In all, about 200 programs made up this initial nomination pool. AED staff wrote or telephoned these programs, of which about sixty provided additional information.

As the first step in winnowing out nominees, the research team eliminated those that had already been evaluated by another research organization.[1] Secondly, programs were reviewed in order to eliminate those that were (a) not examples of education reform and (b) not primarily secondary school reforms. Thirdly, programs operating less than two years were eliminated.

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[1] It was also decided not to study any apprenticeship programs, because a number of organizations were engaged at the time in examinations of youth apprenticeships.

Of the remaining sites, we narrowed our focus to those that showed evidence of (a) some type of strong connection with business, as well as (b) some degree of effectiveness, or promise of effectiveness, in terms of positive outcomes for students. From among this group we selected a group of sites that offered variety in terms of:

- geography (urban, suburban, rural)
- program level (school-based, district-wide, regional, statewide)
- setting (workplace, school building, postsecondary institution)
- student population groups
- delivery strategy (career academies, school-based enterprises, variety of business roles, etc.)

Subsequently, we added two sites that met all our criteria and primarily served students with disabilities. The rationale for this step was two-fold: first, to ensure that the research was inclusive in terms of target populations, and second, because the field of special education has a long history in providing transition services to students, it offers a body of experience from which, as our case studies have confirmed, other educators have a great deal to learn.

AED submitted a list of potential sites for case studies to the OERI, along with program descriptions, a matrix of the programs by criteria, and staff recommendations. From this process of review and consultation, fourteen were ultimately selected:

Mt. Edgecumbe High School (Sitka, Alaska)
Metro Tech Vocational Technical School (Phoenix, Arizona)
East San Gabriel Regional Occupational Program (East San Gabriel, California)
Pasadena Graphic Arts Academy (Pasadena, California)
Performance-Based Diploma Program (Ft. Pierce, Florida)
Aviation Magnet (Louisville, Kentucky)
Baltimore Commonwealth (Baltimore, Maryland)
Education for Employment (Kalamazoo County, Michigan)
Rothsay High School (Rothsay, Minnesota)
Patterson Career Center (Dayton, Ohio)
Youth Transition Program (State of Oregon)
Roy High School (Roy, Utah)
Comprehensive Employment Work and Transition (CEWAT), (Charlottesville, Virginia)
Student Career Opportunity Paths in Education (SCOPE), (Veradale, Washington)

Table A indicates major selection criteria for each of the sites. A brief description of each site is provided in Appendix A.

Case Study Reports

The advantage of case study methodology, characterized by intensive and focused field work, is that it provides for the collection of a rich amount of data from which to draw a comprehensive portrait of a reform initiative and its dynamics. The research teams wrote 25-30 page case studies of each initiative, describing their findings about its design, implementation, impact, and barriers faced by program developers. The case study reports reflect the emphasis on description rather than on evaluation. The primary purpose of AED's study was to document and analyze useful models and practices from which others could learn as they sought to reform education in their communities. Having determined that the sites offered an exemplary approach, the direction of the case study analysis was to describe as meaningfully as possible the operation and impact of the school-to-work reform, rather than to evaluate its individual components or the relative merits of the sites. From the description of the reform, the research team sought to draw the critical elements of that initiative, so that practitioners reviewing the case study could adapt elements to their local circumstances. Judgments that are offered in the case studies reflect the self-assessment of local players, rather than the judgments of the visiting research team.

Cross-Site Analysis

Throughout the case study process, the research team convened to discuss cross-cutting elements, relating and synthesizing the findings of their individual case studies. The teams considered the elements identified as critical at each site, explored similarities across sites, defined variations, and arrived at agreement that an element was present and important in at least four or five sites.

The result of these discussions is this cross-case comparison report. Its basic purpose is two-fold: (1) to document and analyze the outcomes of school-to-work reform, so as to educate practitioners and policy makers about the results that can be documented; and (2) to document and analyze the critical elements common to many or all of the communities studied, so as to make their models and practices accessible and useful to others seeking to reform education in their communities. Despite the variety of the communities, our study has not encountered the usual frustration facing those who compare different programs or initiatives that have little in common. The diversity of the fourteen sites only makes more vivid the elements that they share.

TABLE A

SITE SELECTION CRITERIA

SITES	CRITERIA
Mt. Edgecumbe H.S (Sitka, Alaska)	• Emphasis In Curriculum On Entrepreneurship, Critical Thinking, Technology, And Pacific Rim Studies • Engagement Of Students And Staff In School Restructuring • Postsecondary Articulation
Metro Tech Vocational Technical School (Phoenix, Arizona)	• Long-Standing Business Partnerships • Academic / Vocational Integration of Curriculum • Hard-to-serve Student Population
East San Gabriel Regional Occupational Program (East San Gabriel, California)	• More Than 300 Collaboratives • Partnership With Business • Articulation With Several Postsecondary Institutions • Reliance On Research And Program Assessment
Pasadena Graphic Arts (Pasadena, California)	• Academy Model • Academic And Vocational Integration • Active Partnership With Industry Association
Performance-Based Diploma Program (Ft. Pierce, Florida)	• Computer Assisted Instruction • Dual Enrollment With Community Colleges • Drop Out Prevention/ Reclamation
Aviation Magnet (Louisville, Kentucky)	• Strong School-Business Linkages • FAA Approved Curriculum • Career Academy
Baltimore Commonwealth (Baltimore, Maryland)	• City Office Of Employment Development Role • Career Clubs For Seniors • Emphasis On Marketing To Business Partners
Education for Employment (Kalamazoo County, Michigan)	• County Wide System Based Upon Decade Of Collaboration • Network Of Administrators For Workforce Entry Coordinators • Worksite-Based Occupational Programs
Rothsay H.S. (Rothsay, Minnesota)	• Student-Based Enterprise • Emphasis On Entrepreneurial Skills • Academic And Vocational Integration
Patterson Career Center (Dayton, Ohio)	• Oldest Cooperative Education Program In U.S. • Long-Standing Ties With Employers • System Undergoing Educational Reform Effort
Transition Youth Program (State of Oregon)	• Statewide Program Building On Extensive Interagency Collaboration • Focus On Students With Disabilities • Job-Related Instruction In Academic, Vocational, Social Skills
Roy H.S. (Roy, Utah)	• School Wide Reform • Strong Linkages With Postsecondary And Business • Comprehensive Individual Counseling
Comprehensive Employment Work & Transition (CEWAT) (Charlottesville, Virginia)	• School Partnership With Private Nonprofit Employment And Training Agencies • Support System Of Job Coaches And School Coordinators • IEPs That Incorporate Transition Planning
Student Career Opportunity Paths in Education (SCOPE) (Veradale, Washington)	• Career Information, Assessment, Guidance System • Career-Related Activities Infused Across The Curriculum • Community Resources Coordinator

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III. OUTCOMES OF SCHOOL-TO-WORK REFORM

An educational reform that engages as many players and as many levels of the educational system as does school-to-work transition reform has the potential to achieve significant outcomes for many people and institutions. AED/NIWL's study documented evidence of such outcomes for students, business partners, schools (from elementary grades through college), and other partners to the STW collaboration.

Outcomes for Students

The genesis of the school-to-work movement was the widespread concern that students were leaving high school unprepared for work, lifelong learning, and citizenship. These undesirable "outcomes" remain the impetus behind the current movement. But is there evidence that school-to-work is making a difference?

Our findings suggest that it is important to look both at long-term outcomes for young people and at short-term outcomes--changes that occur while students are enrolled in a school-to-work program. A few sites in the AED/NIWL study had gathered sound data concerning long-term student outcomes in the categories of employment, postsecondary education, and income, and evidence of connections between these circumstances and their secondary school STW experiences. These studies indicated that, a few years after graduation, STW graduates were more likely to be employed, more likely to access postsecondary training, and had higher incomes and professional standing than their peers who did not experience STW. It is one of our recommendations for further research, however, to collect more data on these long-term outcomes for students: employment, independent living, postsecondary education, income, and professional standing.

While these long-term outcomes have an undeniable bottom-line importance, AED/NIWL urges that the short-term outcomes we have documented also be valued, both because of their intrinsic importance, and because they enable students to achieve the long-term outcomes that are the ultimate goal of STW. We found short-term outcomes for students in terms of skills and knowledge, career direction, motivation, and empowerment.

Teachers, administrators, employers, and students themselves at the case study sites reported skills development as a key outcome of STW programs. Most programs are reported to be effectively teaching occupational skills at a sufficient level to enable students to gain a foothold on the professional ladder within an occupation. Most programs also teach, through a combination of classroom instruction and experiential education, a range of "employability" skills: resume preparation, job searching, interviewing, and on-the-job roles, responsibilities, and human relations. Less commonly, gains in academic skills were reported, often by students who observed that their STW experience had motivated them to pay more attention to academics, because now they saw the connection between "book learning" and real world experience.

A new sense of career direction is another very important short-term outcome for students documented by the AED/NIWL study. STW students acquired both formal career plans and a personal, career-directed way of thinking about their futures. Most of the AED/NIWL sites had in place an individualized career planning process integrated with student course selection and postsecondary plans. These processes mean that every student has an individual plan to guide him or her through high school and beyond, in contrast to the traditional system of clumping students into college-going, vocational, or general tracks. Going through the formal process, however, also appears to have enabled many students to internalize career planning processes, a lifelong skill that enables them to weigh their plans against their goals and resources, and take

responsibility for changing their plans as their goals shift.

Students in STW programs discussed their career plans thoughtfully and knowledgeably, demonstrating their acquisition of career planning skills and ability to apply these to their own lives. In particular, students talked about their own career paths, explaining step-by-step plans for acquiring the training, work experience, and sometimes even the financial resources they would need to achieve their career goals. They had an integrated vision of schooling and work, and incremental view of building careers. Students and teachers also both observed that students who previously had shied away from college entirely were now planning at least some college course work.

Motivation is a broadly defined concept, but anyone familiar with high school students in the late 1990s knows how critical it is. Students in STW programs and the adults who work with them report remarkable improvements in motivation, both among students who do well in traditional classrooms and students who do not. Even students who have left school, or are on the verge of it, become motivated to return and to succeed in school. Students apply themselves in new ways to their studies, both on the job and in workplaces. They have an answer, as a principal at one site observed, to the question "Why am I studying this?" Various explanations are offered for the increased motivation: visible rewards in terms of career experience and prospective employment, opportunity to be treated as adults in an adult world, learning that is contextual rather than abstract, pedagogy more conducive to a range of learning styles, and the opportunity to escape from the high school building.

Closely related to motivation, but a more sweeping outcome, is the development of "empowered" students. By "empowered," we mean students who have the knowledge, freedom, self-esteem, and motivation, connected to a deep sense of individual responsibility, to make independent choices for themselves and play meaningful roles in setting the course of the STW program itself. A setting with empowered students has achieved a profound educational reform, because in many respects it is the mirror opposite of the traditional high school classroom. To achieve empowerment requires an educational setting that grants significant power to students, and prepares them to use it responsibly. AED/NIWL teams found several sites that were attempting to create such a setting through STW. Ultimately, empowerment means achieving the maturity to make adult decisions and take responsibility for the results. This is obviously an important step, not only in developing lifelong learners, but in producing responsible citizens. It is important for all young people, but for those with learning disabilities or personal problems that have hindered their social development, it is the step that makes successful independent living possible.

Outcomes for Business and Industry

Although STW reform is primarily intended to benefit students, the AED/NIWL study found evidence of positive outcomes for business and industry as well. Businesses were pleased to have the immediate benefit of extra workers provided through STW internships, although some employers complained that, under short-term arrangements, by the time students were trained and up-to-speed, the internship had ended. We also found evidence that, besides providing an extra pair of trained hands, students can supplement an employer's work force in more sophisticated ways, performing tasks that otherwise would not be accomplished. Students apply problem-solving and technological skills, conducting a marketing survey in Sitka (Alaska), for example, or surveying fire safety systems in Dayton (Ohio), or training adult employees in the use of computer technology in Fort Pierce (Florida). In these examples, the educational system has supplied business with the latest or most sophisticated workplace techniques, rather than the other

way around.

Some businesses also reported as a positive outcome the development of a better-trained pool of potential employees, who understood the industry and its needs. Business representatives on advisory groups, in particular, were pleased with the opportunity to shape the curriculum of occupational training in the high school, and believed they were having an influence on these programs and their graduates that would ultimately pay off for business in terms of a better qualified workforce. Indeed, the case studies found some evidence of businesses hiring graduates of STW programs.

The organizational structures of STW programs and systems create new roles for business and industry that together amount to a more continual and more substantive presence in the educational system. Business takes on leadership roles through representation in partnership steering committees and advisory groups, but it also plays face-to-face roles with students and instructors as employers work as mentors, trainers, and curriculum developers.

Itself an important outcome for business, this enhanced presence in the schools leads to a series of additional outcomes. Surveys have indicated that many employers have negative assumptions about young people and their schools; the case studies found that employers who work with students as part of STW programs tend to express positive attitudes about these students--although they may still have criticisms of their schooling. Some business representatives, however, also expressed more understanding and even appreciation for the challenges facing schools, and how much is accomplished despite these.

Face-to-face supervision and mentoring of students in the workplace at times produces practical and positive outcomes for business. Employees who supervise students gain supervisory, mentoring, and training skills. Analyzing tasks in order to convey them to students, and analyzing competencies in order to assess their accomplishment, has led to improved internal training for regular employees, and reexaminations of internal career paths, according to some businesses.

Collaborating with other community representatives on advisory groups and partnerships has the beneficial outcome for business partners of improved political and business connections. Businesses make new contacts and have opportunities to develop existing relationships that go beyond the STW initiative.

Participation in STW also provides a business with an avenue for good public relations. The role can bring the business more visibility in the community, specifically within the schools--often the heart of a community--and in a fashion that demonstrates commitment to children and to the community's future.

AED/NIWL found, however, that many of the businesses participating in STW appeared to be motivated by a sincere commitment to community service, rooted in a sense of social responsibility. STW programs have many positive outcomes for businesses, but they also require a great deal in energy, time, and resources. Businesses that do participate, however, also appear to have their sense of commitment reinforced by their participation, both because they see results for their efforts, and because they see, firsthand, how serious the issues are. Such businesses often become advocates for school-to-work, encouraging other businesses to take part.

Outcomes for Schools

By definition, the outcome of STW reform is the transformation of the educational process itself: changed curriculum, pedagogy, standards, assessment, scheduling, even the physical location for learning. School-to-work is an educational reform so profound that it literally transforms every aspect of schooling, at least at the secondary level. This recognition goes a long way to explaining the complexity of implementing STW reform, and the resistance with which it

often meets within schools.

Secondary Schools. The AED/NIWL researchers documented many outcomes for secondary schools resulting from the introduction of STW programs. Although those involved generally reported these to be positive outcomes, they were often achieved at the cost of some burnout among STW leadership and over the objections of some staff members.

One outcome is the introduction of new resources--usually brought about through business or other partnerships, sometimes through grants: equipment, funds, advice, speakers, mentors, staff development, student placements. These resources represent new opportunities for students, obviously, but also for school staff.

Which leads into the second outcome: opportunities for the professional development of instructional, counseling, and administrative staff. STW reform means new staffing configurations, new kinds of responsibilities, and new ways of thinking about existing roles and relationships within the school. Staff members who become committed to the reform will see these innovations as opportunities for personal growth as well as for an improved school. They pursue formal training introduced through STW reform and make their own opportunities for personal development.

When STW reform engages school staff in professional development in this manner, it has the further outcomes of creating a more knowledgeable and a more motivated staff. The AED/NIWL site visitors found many instructors who reported that STW had led them to understand and adopt more comprehensive views of student learning processes. Counselors tired of planning career days were reengaged by the opportunity to create more sophisticated career planning systems. Staff members who become engaged in STW reform bring renewed energy and creativity to their work, perhaps in part because, like their students, they have a new sense of purpose for what they are doing in school. Sometimes this also results in a new, formal mission statement; sometimes it is simply a new sense of mission.

As observed above, STW reform by definition leads to the outcomes of changed curriculum, pedagogy, assessment, and scheduling and location of learning. STW reforms in these areas tend to mean certain thematic outcomes as well: more individualized approaches to students and their learning, more flexibility in styles and structures, more competency-based and standards-based teaching and assessment.

A transformation of the school's career counseling system--its structure and process--is also by definition an outcome of STW reform. The AED/NIWL case study process uncovered different models, which, in contrast to traditional guidance counseling, depend upon individual student career and educational planning processes, continual assessment, and up-to-date labor market information, and do not emphasize application to traditional four-year college programs.

Another outcome of STW reform is that it results in less isolated schools. STW brings schools into the community, and invites a variety of community partners into the schools, who in turn bring new perspectives, resources, and connections. The STW processes in which they engage are likely to lead to a community that knows more about the schools and feels more commitment to what happens within them. In some cases, this sense of ownership has led to practical support, such as passage of a school bond issue.

A final outcome of STW reform is that it tends to reorient secondary school thinking towards a K-14+ concept. High school graduation is no longer the goal towards which all activity in the school points: staff members are creating new articulation arrangements with postsecondary institutions, and helping their students plan their futures with the years after high school graduation in view. High school graduation and college admission have become steps in a lifelong learning process, rather than make-or-break hurdles.

Postsecondary Schools. Colleges and universities who engage in STW programs also reorient their thinking towards a K-14 or even K-16 model, making traditional college admission requirements more flexible, granting college credit for STW courses, and even admitting students still in high school to college courses. This reorientation is a significant outcome, but so is the reform in admission requirements, which may change both the process and the materials required, for example, waiving credit requirements or accepting student portfolios. We did find, however, instances in which postsecondary systems were not responsive to these new systems, even openly setting policies that blocked the admission of STW students.

On a practical level, articulation and other agreements may mean a new source of incoming students for colleges. Increased enrollment is usually reported to be a welcome outcome, but some colleges have had more students seeking to enroll than they could serve.

Another outcome is that engaging in STW programs enables colleges and universities to have an impact on prospective students. Through articulation processes, college faculty and staff shape curriculum, strengthen standards, and assist teachers at the secondary level. In these ways, they help determine the preparation that students will bring to the postsecondary classroom.

Elementary and Middle Schools. Not surprisingly, the AED/NIWL study found relatively few outcomes for elementary and middle schools as a result of STW reform, for two reasons. First, our study's focus was on secondary school reform initiatives rather than STW reforms in elementary and middle schools. Secondly, few secondary level STW reforms reach even as far as the middle school. Where there was a STW presence in the middle school, the primary outcome tended to be a strengthened, more systematic career exploration/awareness process. We documented a few curricular changes in middle school classrooms as well.

Outcomes for Other Organizational Partners

STW systems must work with secondary school, business, and postsecondary partners, but often engage other organizations as well, including government agencies, job training entities, community-based organizations, human services organizations, labor unions, and research organizations. In many cases, these partners are being brought into the educational system for the first time, an outcome intended to benefit students that may have desirable outcomes for the partners as well. Collaboration on a STW agenda is likely to introduce people to each other for the first time, create relationships in a new and collaborative context, and suggest new ways of working together. The AED/NIWL research team found evidence of activities apparently spun-off from collaborative planning on STW.

Effective STW reform, like the proverbial pebble tossed into the pond, has a ripple effect that bears important outcomes for all the major players in the effort. Outcomes for students may be most crucial, but the system's survival is also influenced by how it affects the organizational partners.

IV. CRITICAL ELEMENTS OF SCHOOL-TO-WORK REFORM

Introduction

Learning from the experiences across the fourteen communities led us to identify twelve elements or building blocks critical to the effectiveness of school-to-work transition systems:

Element One: Leadership from executives of educational systems
Element Two: Leadership from program deliverers (instructors, counselors, etc.)
Element Three: Professional development for teachers and other staff
Element Four: Cross-sector collaboration
Element Five: Student self-determination
Element Six: School-based curriculum and instruction
Element Seven: Work-based learning strategies
Element Eight: Integrated career information and guidance system
Element Nine: Progressive system that starts before grade eleven
Element Ten: Articulation with postsecondary institutions
Element Eleven: Creative financing
Element Twelve: Application of research

Although we did not discover all twelve elements in all the communities, as a group their experience in designing and implementing school-to-work initiatives illustrates the range of elements and variety of strategies. Table B indicates those sites where each element was identified as a major program focus.

This section of the report profiles each element by first describing the element, then providing examples of the element drawn from different communities. The examples are selective rather than exhaustive, intended to illustrate the comprehensiveness and variety of the approaches to each element our research discovered, rather than to catalog every instance of an element. The examples for some elements are described at greater length than for others because it is more difficult to capture the dynamics, for example, of integrated career guidance systems than of creative financing.

ELEMENT ONE: LEADERSHIP FROM EXECUTIVES OF EDUCATIONAL SYSTEMS

Where school-to-work finds an advocate at the executive level, the reform is more likely to take root throughout the educational system. Where that advocacy is absent, school-to-work is likely to remain a tenuous and fragmented activity, however strong the support from other sectors. All of the communities visited by AED described the presence of leadership by educational system executives: principals of schools, superintendents of districts, and administrators of regional entities. Typically, the most effective school-to-work reforms enjoyed active leadership from the high school executive as well as the support of the school board and district administration.

Successful transition systems require executives who are able to develop a shared vision, clear goals, and a comprehensive strategy, enlisting the support and involvement of all stakeholders, including teachers, students, employers, parents, and the larger community. They publicly articulate a vision of school-to-work reform, a sense of its importance, and a commitment to its realization, engaging significant elements in the community to take on the vision as their own. Change of major scope in any organization requires that its executive assume responsibility

TABLE B

	CORE CUTTING ELEMENTS													
	Mt Edgecumbe H S (Sitka,AL)	Metro Tech (Phoenix, AZ)	East San Gabriel Regional Occupational Program (CA)	Pasadena Graphic Arts (Pasadena, CA)	Performance-Based Diploma Program (Ft Pierce, FL)	Aviation Magnet (Louisville, KY)	Baltimore Commonwealth (Baltimore, MD)	Education for Employment (Kalamazoo, MI)	Rothsay H S (Rothsay,MN)	Patterson Career Center (Dayton, OH)	Transition Youth Program (State of OR)	Roy H S (Roy, UT)	Comprehensive Employment Work & Transition (CEWAT) (Charlottesville, VA)	Student Career Opportunity Paths in Education (SCOPE) (Vancouver, WA)
Leadership from Executives	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓		✓
Leadership from Program Deliverers	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Professional Development	✓	✓	✓		✓			✓		✓	✓	✓		
Cross-sector Collaboration	✓	✓	✓	✓		✓	✓	✓		✓	✓	✓	✓	
Student Self-determination	✓	✓	✓	✓	✓	✓		✓	✓		✓	✓	✓	
School-based Curriculum & Instruction	✓	✓	✓	✓	✓	✓		✓		✓				
Work-based Learning	✓	✓	✓	✓		✓		✓	✓	✓	✓		✓	✓
Career Guidance System		✓	✓		✓		✓	✓	✓		✓	✓	✓	✓
Progressive System Before Grade Eleven	✓			✓		✓	✓	✓	✓		✓	✓		✓
Postsecondary Articulation	✓		✓	✓	✓			✓		✓	✓	✓		
Creative Financing		✓	✓		✓	✓		✓	✓		✓		✓	
Application of Research	✓		✓		✓			✓			✓	✓		

for carrying the vision to the staff and the community. These executives continually and consistently communicate the message throughout the educational system they lead and to community members whose partnership and cooperation are important. Theirs is a public information role, explaining school-to-work to public audiences, what it is and what it may mean to them, but also backing up information with advocacy and persuasion, seeking to secure the engagement of all needed parties.

Beyond vision and advocacy, these executives typically operate with a keen sense of politics, both in understanding the process and knowing the players. They pursue and sustain connections with organizations and constituencies that must be engaged in the school-to-work reform. Moreover, they know how to work systems to obtain the support that the reform needs. Some have an entrepreneurial and creative approach to raising funds, combining funds from different sources, brokering one resource to secure another, leveraging a new source by building upon an old one. Given that seed money is usually needed to start these reforms, it is hard to overstate the importance of this role.

These executives are entrepreneurial in another sense: they are willing to take risks, to try things that have not been tried before and to encourage others to act in a similar manner. Faced with obstacles to change, they respond with flexibility and creativity. They are willing "to step outside of the box" to seek resources, ideas, and advice likely to take them and their systems beyond traditional approaches. Embracing the new is always a risk for a leader, to whom will fall the responsibility of justifying the change and sustaining the effort through the failures and mistakes inevitable in reform.

Another quality of these executives is in fact a recognition that change demands time, mistakes, and a tolerance of failure. While they set and expect high standards for their staff members, they also create an atmosphere that encourages learning from mistakes, allowing the reform to evolve and recognizing that mistake-free environments are those in which little is attempted and less ever changes for the better.

Recognizing the complexity of change and the skills it requires, leaders also support staff development for those of whom change is asked. Indeed, these executives are often notable for, not simply a willingness, but a commitment to empowering others throughout the system to assume leadership. They share authority rather than hoard it. They recognize that any reform dependent upon one or two leaders, however effective, is fragile and unlikely to survive beyond the tenure of that individual. Change supported by leaders throughout the system may move beyond the initial vision, and it is more likely to endure.

Patterson Career Center, Dayton, Ohio

The current restructuring of Patterson Career Center and its movement toward a participatory management style would not have occurred without the vision, commitment, and persistence of its principal. Referred to by superiors and staff as "Mr. Reform, Team Builder, and Risk Taker," he is widely credited with developing a unified identity, mission, philosophy, and strategic direction for the school, with a willingness to share leadership roles and decision making with his staff, and with the patience to bring others along as they adapt to the new vision. His goal is to develop leadership throughout the school and institute a participatory management model in a decentralized structure. He has energized the staff and inspired them with optimism, enthusiasm, and confidence.

He has also worked with them to create a school environment characterized by caring, trust, and respect. Teachers report that their ideas are not only encouraged but accepted and adapted as the basis for reform.

Roy High School, Roy, Utah

Roy's educational reform initiative features student-centered counseling and flexible scheduling, allows students to graduate early, provides an innovative use of credits, and has special relationships with a number of postsecondary institutions and employers. The high school's assistant principal is credited with the initial success of the entire reform initiative. He has not only supported the restructuring process but empowered all the players, including teachers, to be active participants in the process. His flexible approach to leadership has enabled teachers to work without the administration in their way. He has brought together all the important parties and sold the reform ideas to them in a way that has led them to take on the initiative as their own. He takes part in many scheduling and credit granting decisions and Student Education and Occupational Plan (SEOP) conferences. In addition, he has developed important relationships with employers, community agencies, and postsecondary institutions, relationships that are essential to maintaining the vision and moving the reform forward.

Metro Tech Vocational Institute of Phoenix, Arizona

Metro Tech's leadership has instituted a set of innovations--including work-based learning, infusion of academics into vocational skills training, and technology-based instruction--held together by a fundamental vision for accomplishing school reform. The staff report that since the early 1980s the school has operated under the leadership of knowledgeable, visionary, and effective administrators who have pursued the goals of quality vocational education, partnerships with business and industry, and physical and technological improvements to the school's facilities plant. These leaders are credited with setting the overall vision for the school, with the financial savvy to pursue funding, and with knowledge of educational reform strategies. The principal and two assistant principals perform the typical duties of top administrators, but also communicate and promote the school's reform priorities, particularly academic infusion of vocational curricula and technology-based instruction. The staffing structure, however, balances strong central direction with decentralized responsibility for individual vocational programs, granting the latter considerable independence in developing curriculum and working with business partners.

Mt. Edgecumbe High School, Sitka, Alaska

Mt. Edgecumbe High School is engaged in reforms with a dual purpose: to engage the stakeholders who make up the school in a continuous cycle of evaluation and improvement of systems, and to equip students with the skills and habits necessary to engage in lifelong learning and to thrive in a productive career. The framework for the reforms is total quality management (TQM), a systems-change concept that focuses on the involvement of stakeholders, continuous analysis and improvement, maximizing the value and potential of each worker, and the development of a positive organizational culture. Among its other tenets, TQM calls for a clearly articulated vision, the involvement of stakeholders in the decision making process, and constant evaluation and improvement of the process. Coping with difficult politics while fostering the involvement of community and teachers, the administrative leadership at the high school built a strong foundation for TQM, attempting to serve as "a pace car to set the pace and then get out of the way." The result has been staff and students who are engaged in the process and willing to

change.

East San Gabriel Valley Regional Occupational Program, East San Gabriel, California

The Regional Occupational Program (ROP) system in California provides occupational training on a regional basis to high schools and to adults, and usually represents the joining together of two or more school districts for this purpose. The East San Gabriel Valley Regional Occupational Program (ESGVROP) was established in 1972 to serve constituents sixteen years and older from six unified school districts that operate a total of seventeen high schools and three adult continuation schools in the central and eastern areas of Los Angeles County.

Credited with an empowering leadership style, the superintendent of the ESGVROP delegates administrative authority throughout a small team of coordinators. She and her staff foster an atmosphere conducive to collaboration by encouraging trust, flexibility, and acceptance of change among the ROP's many partners and at all levels of the staff. Within that atmosphere, they combine vision with competence and determination to succeed. They approach their school partners as customers who face individual situations and needs. Their painstaking attention to the details of management has produced systems of communication and transportation capable of tracking and serving individual students in individual placements across greater Los Angeles.

Education for Employment, Kalamazoo County, Michigan

School-to-work in Kalamazoo Valley is a system developed over time to sustain Education for Employment's (EFE) basic purposes: to provide career-technical education for all students, to involve business and industry as well as educators, and to engage postsecondary as well as secondary educational institutions. A consistent theme in Kalamazoo is the quality of the system's leaders: their competence, commitment, vision, strategic thinking, collaborative style, knowledge, and political savvy. EFE personnel are well-connected to the world of education beyond the county through active leadership in professional organizations, networking in state political circles, and relationships with national organizations. The top administrators, specifically the assistant superintendent and the area vocational directors, are often singled out by those involved for their leadership. Their commitment to nurturing leadership throughout the system is notable, however, including the deliberate hiring and appointment of individuals with leadership qualities, and the organizing of a system whose structures and processes empower and support leaders throughout the EFE. The result is that many people, at various levels of the system, are regarded as leaders: instructors, counselors, advisory committee members, secretaries, and indeed, students.

Aviation Magnet, Louisville, Kentucky

Visionary school leadership brought the aviation magnet to Shawnee High School, and administrative leadership at the district, school, and program level has helped it grow. At the district level, support has come from the senior deputy superintendent, who belongs to an informal flying club with the magnet's coordinator and an aviation instructor, having obtained his pilot's license in the past few years. He understands how this magnet can meet the needs of business and industry and students. His advocacy has been extremely important as the program tries to educate educators about the industry and develop a program responsive to industry and the rigorous requirements of the Federal Aviation Administration and Federal Communications Commission.

Within the high school, the principal advocates for the program and its expansion, wanting to see other students develop the sense of direction evident in aviation magnet students. His stance has helped overcome the misunderstanding and jealousy of some teachers in the high school who question why the magnet should receive special attention and resources.

Youth Transition Program, State of Oregon

The basic goal of the Youth Transition Program (YTP) is to place youth with disabilities in meaningful competitive employment or career-related postsecondary training, providing services to these youth beginning in their completion year of high school and continuing for up to two years. A consistent factor in YTP's effectiveness is the quality of its leaders at both state and local levels: their competence, commitment to students with disabilities, vision, strategic thinking, knowledge of communities, ability to collaborate and network, and political instincts. They value training, technical assistance, and program design and modification based on evaluation. Through their delivery and solid grounding in research and programs, they have won the support of state policy makers, including the legislature, the governor, and agency leaders, support that has paved the way for connections with statewide education and workforce reform and restructuring.

ELEMENT TWO: LEADERSHIP FROM PROGRAM DELIVERERS

The category of program deliverers covers a variety of roles, including those of school-to-work or program coordinator, instructor, counselor, transition specialist, and others. Program deliverers work on the front line, translating administrative strategies and policies into practices that best serve students. Exactly how school-to-work systems structure and staff these roles varies considerably among the communities visited by AED. Certain delivery roles typically belong to certain positions--instructors usually provide classroom training, for example--but other roles, such as communication with business partners, may be delegated or shared in various ways. Although the system, to be effective, must staff these roles somehow, it does not appear to matter whether, for example, an instructor or a program coordinator or a transition specialist arranges a workplace experience, as long as the system deliberately and clearly determines who will accomplish the task.

In a fundamental sense, the program deliverer's generic role is to find ways to ensure that the system meet the needs of each individual student. Program deliverers face the challenge of serving large populations of students who bring diverse talents and needs, while simultaneously navigating the requirements of schools, businesses, and service agencies. Those who successfully cope with this challenge are often adaptable, risk-taking, creative in developing strategies, and willing to work in order to understand and collaborate with systems and organizations whose resources should be brought into the school-to-work system.

As managers, program deliverers must possess excellent organizational and communication skills. The logistics of these programs are very demanding, incorporating as they do the coordination of limited resources, students and employers, conflicting workplace and school schedules, transportation systems, and a host of legal and institutional regulations. Those in

managerial roles must support other program deliverers by encouraging innovation, allowing for mistakes, providing for professional development, and promoting clear and continual communication among program deliverers.

As reformers, program deliverers require substantial knowledge of pedagogy, curriculum, industry, and the student population. Often deliverers in different positions--instructors and coordinators, for example--complement each other's strengths and weaknesses in terms of knowledge. By definition school-to-work programs incorporate innovative teaching methods and curriculum, such as contextual learning, integrated academic and vocational study, and learning in workplaces. Program deliverers should have related knowledge or experience if they are in the position of explaining or justifying these changes to other staff responsible for implementing new teaching approaches and curriculum. Without that grounding, the deliverer will have little credibility.

Whether their training is academic or experiential, effective program deliverers also understand youth development and learning theory, including the variety of learning styles and the stages of adolescent development. They also appreciate that special populations--students with disabilities, students who are also parents, students with limited English proficiency, for example--have additional educational needs.

Effective program deliverers have some understanding, usually earned through actual experience in the industry, of the occupational area within which the school-to-work program provides training. This knowledge wins them credibility with business representatives and helps them create and sustain connections among the employers asked to provide resources, student placements, or other assistance.

Turning from the general characteristics of program deliverers, it is important to note that some areas of knowledge and aptitude are especially important for certain roles. Instructors taking part in a school-to-work transition reform, for example, will probably have primary responsibility for identifying new learning activities and developing new methods of instruction, curriculum, and classroom management. Their leadership in designing the school-based component of school-to-work transition systems cannot be overestimated. The roles taken on by teachers in effective systems are often quite different from traditional academic teaching, as teachers must not only facilitate career-connected learning in their classrooms, but also ensure the interconnections for students among work-based learning, classroom study, and individual career goals and interests. They must be committed to helping each student navigate these new learning systems and often fill such diverse roles as tutor, mentor, friend, role model, and task master.

Counselors also play a vital role in helping students choose among career paths and integrate their learning experiences in school and work situations. Counselors are the only source many students have for career information, occupational awareness, assistance in assessment, labor market information, job placement assistance, and individualized guidance about career choices. For many students, positive work experiences depend on the ability of counselors to help them assess their interests, match them with appropriate business settings, evaluate their progress, make decisions about the future, and understand what they are learning. Effective counselors creatively develop sound plans for individual students and forge working connections with employers, social service agencies, and job services. They are always open to and searching for

new resources in job placement, treatment programs, child care, transportation, and other related areas.

Program coordinators are most immediately responsible for managing the school-to-work transition initiative. In regional school-to-work systems and large vocational schools, often a mid-level administrator functions as the school-to-work coordinator, having responsibility for a cluster of programs. Other sites have appointed school-to-work coordinators to fill this role. Whatever their official title, coordinators must concern themselves with leadership, with management--including logistical matters like transportation and scheduling, and with pedagogy and curriculum.

As leaders, coordinators communicate the vision of school-to-work to instructors, counselors, students, employers--partners of all kinds. They also translate this vision into language or perspectives understandable to the various players, each of whom brings a different set of motivations and purposes to the school-to-work reform. In the best sense of the word, coordinators are opportunists who discover opportunity everywhere, whether for new student placements, funding, or some other resource that would help the program.

One of the important roles that emerged in a number of sites was the "transition specialist," who is responsible for making clear the connections between the worlds of work and learning. This specialist may help students assess their interests and work experiences, evaluate work-based learning, connect information back into school-based learning, and serve as a liaison and resource for businesses.

Aviation Magnet, Louisville, Kentucky

In Louisville, almost everyone who was interviewed pointed to the leadership of the two coordinators--one for aviation and one for travel and tourism--as one of the essential factors that has made the aviation magnet successful. (The aviation coordinator also serves as the overall administrator for the aviation magnet.) These two individuals know all the students in the program, including their problems, needs, and goals. They serve as counselors, coaches, and even as parents. Their primary administrative responsibilities include scheduling, connecting magnet programs with others in the school, collaborating with business and industry, maintaining relationships with school and central administration, and trouble shooting. The two coordinators have the ability to cut loose and be creative, energetic, and entrepreneurial, building upon their firsthand knowledge of the industry and almost all its key players. They know how to obtain equipment, materials, resources, internships, work placements, and support for the program from a diverse set of business and school system partners.

Performance-Based Diploma Program, Fort Pierce, Florida

Teacher leadership is essential to the Performance-Based Diploma Program (PBDP), a self-paced, mastery learning program designed as a school-within-a school, which consists of an array of academic, vocational, counseling, mentoring, and internship programs for the 160 students enrolled in the program. The PBDP is organized around self-paced Computer-Assisted Instruction (CAI) labs in English, math, science, and social studies.

Although the computer provides the lessons and tests that each student must master, the teachers manage a classroom with thirty students on thirty different lessons at varying levels where they must be ready to help any student at any time. The teacher is subject matter expert,

classroom manager, and individual tutor, a role that demands teachers be not only dedicated and expert but also able to manage what, at times, is an ambiguous learning situation. Teachers continually check activity reports, transcripts, grades and the status of students, keeping track of their academic situation on a daily basis.

Teachers also facilitate peer counseling, for which role they are trained in adolescent affective skill development. A teacher-facilitator works with a group of students to help them cope with academic stress, personal problems, and social issues. The teacher works with the PBDP guidance counselor on specific student or group process issues. This peer counseling role, along with the basic nature of the PBDP and the CAI labs, results in very close relationships between teacher and student.

Communication among the staff also contributes to the program's effectiveness. Teachers and staff meet weekly to share information about students and discuss concerns, sharing strategies and stories and gaining a thorough understanding of the students.

The lead teacher is praised for her performance as the program's coordinator, as not only a visionary but a missionary as well. Students, teachers, and administrators all spoke of her administrative and communications skills, her political intelligence, her support for students whom others have discarded, and her ability to generate support for the program.

Roy High School, Roy, Utah

Roy's counselors and teachers are committed to making the system work for each individual student, and the result is almost unlimited options for students. The core of Roy's reform is its comprehensive career guidance and counseling program, through which students develop individual Student Education and Occupational Plans (SEOP). The counselors developed the comprehensive career guidance and counseling process at Roy and are in charge of the SEOP process. They provide students with information, options, and choices and work with them to successfully undertake their educational plans. At times the counselors serve as advocates for students with teachers, employers, and parents while at other times they are the bridge that links school-based activities with work and employment activities. They are the ones who recommend that credits be awarded for activities (as a substitute for courses), who monitor the flexible scheduling, and who recommend early graduation or concurrent college enrollment. The counselors help students evaluate credit needs, recommend colleges, and help the students stay on track. In addition, they help students work with related agencies such as Job Services.

Without the active participation of most of the teachers, the high school's reform would not have succeeded. It has required teachers to change their teaching styles, their curriculum, and their working relationships with one another, leading to more multi-tasking classrooms, more interdisciplinary classes and instruction, and curriculum compacting. Through the faculty senate, teachers have identified the standards and competencies that students need to meet and have developed alternative means for students to meet them. Instructors also teach work readiness skills through the "critical workplace skills" course, an open-entry, open-exit class offering applied and work-related training to students.

Youth Transition Program, State of Oregon

One of the crucial elements in the effectiveness of the Youth Transition Program (YTP)

resulted from the decision to create new positions within the system to support students. In each participating school district, YTP services are provided by a team consisting of a school teacher who serves as the teacher coordinator, one or more transition specialists, and a vocational rehabilitation counselor from the local office. The leadership and guidance of the transition specialists and the teacher coordinator depart from traditional school practices and have allowed for both a wide array of opportunities for students and rich connections with the larger community.

In general, the transition specialist's role includes recruiting students, assessing students, developing individualized plans (both Individualized Education Plans and Individualized Written Rehabilitation Plans), developing job placements, and supervising students on job sites. Individualized instruction is one of the keys to YTP's effectiveness. Each student completes an individualized assessment and receives an appropriately tailored instructional program. The local vocational rehabilitation counselor then establishes student eligibility for the program, develops individualized plans, provides or purchases support services not provided by the school, and provides postsecondary placements in employment or training.

Student Career Opportunity Paths in Education (SCOPE), Veradale, Washington

Central Valley High School initiated SCOPE by depending on existing school staff to carry out all aspects of the reform. It became clear, however, that, most acutely in the area of forming alliances with the community, the school needed to assign one full-time staff member exclusively to the program. The administration created the new position of "community coordinator," paid for through state grant funding, and hired an individual with more than twenty years of business experience, mostly in greater Spokane. Besides an extensive network of professional contacts, this individual also brought to the position a history of volunteerism in schools and service on Chamber of Commerce education committees. Within six months his hiring had a dramatic impact on the range of work-based learning opportunities available to Central Valley students: business representatives spoke to high school classes every day; job shadowing opportunities for students had increased, with placements as far away as Seattle; and partnerships between business and classroom teachers had led to comprehensive project-based work experiences for students.

Comprehensive Employment Work and Transition, Charlottesville, Virginia

A unique facet of Comprehensive Employment Work and Transition (CEWAT) is the school's outsourcing of the "employment specialist" position to a private, nonprofit employment service organization. The employment specialist is a professional position, requiring a bachelor's degree in rehabilitation, sociology, psychology, or a related field, and a minimum of one year of experience providing direct services to individuals with disabilities or to at-risk youth. Employment specialists function like job coaches, providing a range of services to each student assigned to them in the attempt to place students appropriately and sustain them in these placements. The specialists work intensively with students at the job site for the initial four weeks of the program and remain with the students in a support capacity throughout the program, maintaining monthly contact with their employers as well, after the initial placement period. They engage in multiple tasks to support students, including assessing student work readiness, assisting in the job search, maintaining knowledge about jobs in the community, serving as a liaison with

employers and a resource to help them understand the needs of the students, providing intensive support and instruction to students in skills needed to be employable, and conducting evaluations and follow-up.

Baltimore Commonwealth, Baltimore, Maryland

The structure of the Baltimore Commonwealth system is customer-oriented. It has three major units: a unit concerned with out-of-school youth, a unit that works with schools and students in schools, and a unit that works with corporate partners and other resource organizations. The network of school-based Commonwealth offices includes one office located in each of Baltimore's twenty-one high schools. These Commonwealth offices are staffed by Commonwealth youth coordinators, advisors who recruit students for career clubs and match their needs, occupational interests, and grade level to specific Commonwealth programs. Youth coordinators actively recruit students, keeping the office open before and after school and during lunch, and visiting classrooms. They also announce programs in school newsletters and send letters directly to parents.

The unit that works with business and other partners is staffed by resource coordinators, described as "the one-stop shop for business." They develop personal contacts and ongoing relationships with employers. They make job placements and deal with any issues or problems that an employer may have with a placement. The school-based coordinators submit monthly requests to their assigned resource coordinator, specifying such needs as speakers and materials, jobs and internships.

ELEMENT THREE: PROFESSIONAL DEVELOPMENT FOR TEACHERS AND STAFF

Whenever a major reform is introduced into a school system, practice in classrooms, counseling sessions, and administrative procedure must change. If it does not, the reform will be short-lived. Professional development is one route school-to-work initiatives adopt to engage school staff in the reform, ensuring that at least some will change their professional practice sufficiently to support the vision and strategies of the reform. For professional development to occur successfully, the executive of the educational system must make it a priority for that school, district, or regional entity. Like so many aspects of school-to-work, professional development conflicts with standard school schedules and logistics, which can block the effort unless an administrator in a position of some authority clears the way.

Models for professional development differ considerably among the sites studied by AED. In some cases, schools provide training through workshops or in-classroom assistance. Workshops are typically skills-based, offering training on such topics as computer-assisted instruction, interactive lesson programming, or integration of writing into vocational curriculum. In-classroom assistance offers teachers an expert assistant who observes their classroom practice and suggests ways to adapt their teaching methods and lesson plans to the reform's purpose. In other cases, professional development is more broadly defined to encompass experiences outside of school, exposing teachers to workplace realities by providing them with internship opportunities, for example. Teachers who benefit from experiential learning, of course, gain both in terms of content (increased understanding of office work in the 1990s, for example) and

appreciation for experience as an alternative to learning in the classroom. In still other cases, professional development is an implicit element of a fundamental reform that empowers instructors and transforms their role into one that expects and rewards initiative. A reform that redefines instructors as professionals whose ongoing development is their own and the system's responsibility, is most likely to result in a staff who will take on school-to-work as their own: a long-standing and fundamental commitment to educational reform.

Metro Tech Vocational Technical Institute, Phoenix, Arizona

The concept of infusing academics across the Metro Tech curriculum had circulated among the staff for at least five years before the district won special Perkins Act funding for the Fusion Project, but acquiring that grant enabled the district to embark on a focused drive to integrate academics into vocational education. The leadership chose as its primary strategy the application of writing and mathematics across the curriculum and selected professional development as one approach to implementing the strategy. Fusion Project funds paid for the special reassignment of two mathematics and two English teachers to offer after-school workshops for teachers and instructional aides. Teachers who attended the writing workshops wrote job descriptions, business letters, and autobiographical sketches. In the math workshops, teachers carried out measurement and computation exercises. The four teachers also worked with vocational teachers individually, visiting their classrooms to demonstrate writing or math integration, adapting the classroom teacher's lesson plan.

Through another set of workshops, teachers learned software packages like Hypercard and Authorware, which enabled them to write their own instructional packages, and produced videos. Their final products were all packaged to run on commonplace software and described in a curriculum materials catalog circulated throughout the district. The administration also hired a business teacher to work with the entire teaching staff to help them become computer literate.

Patterson Career Center, Dayton, Ohio

Teachers at Patterson Career Center have been offered extensive inservice training opportunities to learn the skills and tools needed to prepare them for effective implementation of participatory management. School administrators have created and supported a structure which allows instructional leadership to come from the program area clusters. Teachers feel encouraged in their efforts and have responded favorably to the instructional support that they receive from other members of their cluster. At the same time, there has thus far been little provided in the way of formal instruction for academic teachers in the various vocational areas. Much of the integration that has occurred has been done on an informal basis on the individual teacher's initiative.

Roy High School, Roy, Utah

Ongoing staff development has been an important element in the reform initiative at Roy. From the outset of the process, the school has invested heavily in staff development. They have used the resources available through a nine-district consortium and the Centennial Schools for staff planning and training. This decision to invest in staff development involved most teachers in the change process and greatly influenced their willingness to endorse the changes. In some

instances, teachers who had a idea for development requested and received funds. For example, two teachers, one in history and one in English, worked together to create an integrated curriculum. Other teachers visited a major business partner for an orientation; the school paid for substitutes to cover their classes.

Performance-Based Development Program, Ft. Pierce, Florida

Staff training is an important element of the Performance-Based Development Program. All staff receive Lab Management Training every summer from Jostens Learning, the company that maintains the computer-assisted instruction (CAI) system, covering the curriculum and management aspects of CAI. In addition, there is a summer workshop in peer counseling for all facilitators. Because of the nature of the CAI labs, all the teachers need to review their subjects constantly in order to maintain the breadth of knowledge necessary to cover all of the information in each of the subject units. Teachers have also taken part in major presentations and award ceremonies that support their professional development.

ELEMENT FOUR: CROSS-SECTOR COLLABORATION

A school-to-work transition system is by definition dependent on effective collaboration among all of the stakeholders involved in the process. Effective collaboration requires the involvement of all stakeholders in an active and ongoing partnership, and the willingness of each stakeholder to reform all aspects of the system. Developing and maintaining such partnerships takes time and continuous nurturing so that each partner recognizes the rewards, risks, and long-term outcomes they can expect for themselves and, more importantly, for the students.

The first step in developing a representative system is taking stock of the range of partners in a community. It is important to engage partners early in the process in order to foster a sense of empowerment, ownership, and ability to influence the shape of the system. These collaborative efforts draw from a range of partners much wider than traditional school partnerships, and include: representatives from secondary schools and districts, business and industry, unions, postsecondary education, community partners, parents, social service agencies, and private sector people with needed skills (for example, job services). These systems of collaboration also reach across layers within organizations--from CEO to mailroom worker--and between partners--from an individual school-business partnership to a statewide initiative.

Effective long-term collaboration requires not only broad and inclusive recruitment, but also continuous nurturing of individual members as well as the partnerships. The system must encourage partners' active involvement, fostering clear communication about areas of concern or interest, developing a level of comfort with risk and change, and building a system where mutual trust and reciprocity are recognized and applied.

This may require structured education/training sessions for various partners. Different partners require different types of support or reassurances that the system will work for them. For example, employers must feel that in the long term it is worth their staff time and resources to take high school students into their workplace and mentor or train them. Schools would thus have to prepare and market the student to businesses--by equipping students with workplace readiness skills, for example; provide employers with a school-based liaison; and perhaps even

train employees in how to interact with and mentor a high school student.

The goal of such extensive and carefully nurtured partnerships is an atmosphere of shared vision, beliefs--and ultimately, resources. The collaborative process and atmosphere of trust leads to profound change in attitude and actions in areas such as a willingness to give up turf and reallocate resources, and in a recognition that effective partnerships take a great deal of time and a commitment to sustained effort for the duration. It is only when individual relationships turn into institutionalized changes and systemic reform of services to students that a school-to-work system becomes sustainable.

Comprehensive Employment Work and Transition, Charlottesville, Virginia

The Comprehensive Employment Work and Transition (CEWAT) program has harnessed a broad array of partners and community resources, coordinating an array of transition services and activities in order to deliver vocational training opportunities to students with disabilities and at-risk students who otherwise would drop out or leave school with few marketable skills. CEWAT uses a "working team model" which promotes non-duplication of services by coordinating resources. This team includes: multiple government agencies; nonprofit, community-based organizations; employment service providers; counselors; instructors; school administrators; and employers. Government agencies that participate on the team include the Community Services Board, the Department of Rehabilitation Services, the school system, the courts, and JTPA/PIC (Job Training Partnership Act/Private Industry Council). For example, the Department of Rehabilitation Services provides career assessment services for eligible students as well as some instructional support, and the joint Charlottesville-Albemarle Technical Education Center provides assessment and instructional services.

The private sector plays a unique role in the working team. WorkSource Enterprises, Inc. is a private, nonprofit employment service organization that offers employment opportunities for persons with disabilities. The organization has been a major partner in CEWAT since the beginning, collaborating with the school system to obtain the federal grant that began CEWAT. For seven years, WorkSource has provided job placement and support services for Charlottesville High School. Through this partnership, WorkSource furnishes a placement director and employment specialists.

East San Gabriel Valley Regional Occupational Program, East San Gabriel, California

ESGVROP has a long history of active collaboration and partnerships. The ESGVROP's network extends over an area of 400 square miles and includes more than three hundred business, government, educational, and community organizations.

The success ROP leaders have experienced in crafting an effective collaboration is due in large part to their commitment to nurturing the partnership. They begin by creating an atmosphere that is sensitive and responsive to the needs of all their partners. ROP leaders set the tone by being visibly committed to collaboration and equal partnerships, and to giving up traditional turf. The result is a willingness by partners to share resources and trust, even on confidential matters.

For example, the clarity with which the ROP defines the school districts as its customers has shaped a working relationship in which the districts report continual support and assistance from the ROP. Two-way communication between the ROP and its districts is sustained through countless informal conversations daily and through formal meetings. Representatives of the

districts report a great variety of ways the ROP has both anticipated and responded to their needs, providing assistance beyond the fundamental service of educating students: channeling practical and pertinent research findings to the districts, serving as a resource on cutting edge reforms in education, brokering business involvement with schools, fostering more communication between academic and vocational teachers, helping with grant applications, and even providing direct services in crisis situations.

The ESGVROP has a wide array of service agencies involved in the partnership. The agencies sign formal memoranda of understanding, in which they agree both to work with the ROP and with one another. It is a notable feature that these agencies also obtain services from the ROP. For example, all ROP students are enrolled in the California Employment Development Department's (EDD) employment service, and in return, the ROP makes referrals for EDD clients. EDD has also provided labor market information to the ROP, formerly very difficult to obtain. The National Council on Aging provides tutors, mentors, and job coaches and helps in job development; in return, its staff can access any of the ROP services.

Similarly, ROP leaders conceive of their relationship with business as "a process that leads business into the system." Businesses are involved in many ways, including providing worksite training that encompasses a mutually agreed-upon curriculum of competencies for ROP students. In return, the ROP offers services to businesses such as a free assessment of their training needs, information on how to enroll employees in ROP classes, and guidance to individual employees who are willing to serve as mentors to students.

Youth Transition Program, State of Oregon

Oregon's Youth Transition Program (YTP) is a prime example of a collaborative process resulting in the long-term commitment of partners and substantial institutionalized changes in their operations and interactions. The YTP is a statewide collaborative effort involving 26 communities throughout Oregon in a system supporting the school-to-work transition of students with disabilities. Oregon's approach to school-to-work transition has involved three elements: 1) systemic change, rather than traditional categorical or discretionary approaches to managing separate programs; 2) networking; and 3) interagency collaboration. The state sees this approach as one that looks at managing the larger school-to-work system and using federal and state resources as venture capital to leverage that systemic change. Oregon's Workforce Quality Council sets coherent policy around the state's education, workforce, and placement programs. Through this board and other efforts, the state is developing a coordinated approach to administering its federal and state programs centered around benchmarks it developed. For example, the ten agencies that deliver most of the state's education and workforce training programs are required to focus their policy and budget work on top priority benchmarks (e.g. advancing students in professional and technical education, increasing literacy, upgrading skills of the current workforce). Consequently, Oregon is attempting to develop integrated planning formats for federally-funded programs such as JTPA, JOBS, Carl Perkins, and Adult Literacy, each of which has different timelines, data collection requirements, and funding requirements, among others.

At the local level, YTP fosters collaboration across sectors that are critical to supporting students in the transition process. The YTP assists state and local education agencies in

developing extensive partnerships with vocational rehabilitation agencies. Program planning and implementation are coordinated across agencies and community placements, and employers are active program participants. The depth of partnership is evinced through tangible actions such as shared training, technical assistance, and program funding.

Mt. Edgecumbe Enterprises, Sitka, Alaska

The concept of working with all the stakeholders to develop a system that will best serve its students led Mt. Edgecumbe High School (MEHS) to collaborate extensively with other education institutions. MEHS has historically worked with the three other education institutions in the area and is honing those connections; in addition, future plans call for the development of a formalized cooperative school to provide career training programs for secondary and postsecondary students. In order to offer a specialized curriculum, capitalize on learning opportunities offered by other schools, and maximize educational resources in the community, MEHS established working relationships with neighboring Sitka High School (SHS) and the two area postsecondary institutions--the University of Alaska Southeast (UAS) and Sheldon Jackson College (SJ). Any student from MEHS can access courses offered solely at Sitka High School and vice versa. Because each school has certain specialties which the other does not offer, this ensures that virtually any area of student interest can be covered by one of the schools. MEHS students are also able to access postsecondary-level courses at both SJ and UAS. Students get dual credit (high school and college) for some classes. Both institutions are close to MEHS; the university is, in fact, adjacent to the MEHS campus. And both schools have been responsive in adapting to the needs of MEHS, for example by changing their own postsecondary career certifications to meet high school diploma requirements. MEHS and its partnering educational institutions are also working to take their alliance to a new level. They are in the process of creating the Sitka Cooperative School, which will provide previously unavailable professional and vocational training programs for secondary and postsecondary students. They will emphasize individualized career counseling and will articulate programs so that students can be certified for a career directly out of high school or continue to receive postsecondary training. Resources such as funding and classrooms are shared among the four main partners. Carefully nurtured partnerships have resulted in a shared vision, commitment, and resources.

Baltimore Commonwealth, Baltimore, Maryland

Since the late 1980s, the Baltimore Commonwealth, a partnership between the executives of the city's business, government, education, and community, has sought to improve the calibre of graduates from the public school system in order to ensure that more are prepared for good employment or for postsecondary education when they leave school. Discussions beginning in 1986 among these partners led to an accord that businesses would guarantee jobs for graduates if they could meet basic criteria agreed to by business. With the leadership of the city's mayor, the Baltimore Office of Economic Development (OED) sought to put the plan devised by the partnership into operation.

Underlying the Baltimore Commonwealth, both the central office and its network of school-based offices, is the concept of the team, a structure for sharing information and contacts intended to cut through the great bureaucracies of government and education typical of any major

urban area. The Commonwealth operating structure utilizes "employability teams" at each high school. These teams bring together the resources of the city schools, the OED, and the Greater Baltimore Committee, a formal alliance of business and community leaders. In its ideal form, the employability team includes four staff members of the high school: a principal or assistant principal, the guidance department head, the vocational club advisor, and a school-business contact person, usually a teacher. The team also includes three Commonwealth staff members, one from each of the central office units: a community specialist, a resource coordinator, and Commonwealth (or in-school) youth coordinator.

ELEMENT FIVE: STUDENT SELF-DETERMINATION

In order to help students prepare for a lifetime of learning, fulfilling work, and productive adult roles, school-to-work transition systems must support the development of self-determination in students. Students should be encouraged to take responsibility for their learning, to understand and manage their career options, and to develop social skills and a maturity level that will help them interact positively with adults and peers. This is especially true for at-risk students, as the school system may be their only vehicle to learn how to cope with the complexities of adult life. Obviously, these efforts must rely on developmentally or age-appropriate strategies: what is good for an eleventh or twelfth grader is not appropriate for seventh or eighth graders.

A school-to-work system promoting self-determination for students can lead to changes in the entire learning process. In the school, alternative assessment processes such as self-assessment or portfolios help students see the relevance of school to "real life" and help them feel that they can influence their own progress. A breakdown of traditional teacher-student roles to promote responsible roles for students helps students take on responsibility for their learning. Opportunities to gain college credit or to study at a local community college expose students to high expectations--and, hopefully, the realization that they can live up to these expectations--and help the students attain a sense of adulthood. Comprehensive counseling helps students develop solutions to personal problems, assess their areas of interest and talent, access job-related information, and select a career. Work-based learning experiences also offer an excellent opportunity to promote self-determination in students. Exposing students to workplaces helps them get an idea of what careers entail, what employers expect of workers, and what students might want to focus on. In addition, breaking down the transition to work into smaller, more manageable pieces helps students recognize that they can in fact do the work and achieve success in a given field. Forging links between students and "real life" workplace experiences--especially those which occur away from school buildings--helps them develop a sense of responsibility and accountability on a whole new level. Working with adults both as role models and as colleagues helps build students' self-esteem, social skills, and level of maturity.

Some school-to-work systems provide additional classes or other options which help students take charge of their lives and careers. Classes in independent living, social skills, or cultural awareness help students learn how to behave in areas where there is traditionally no assistance from schools. Options such as job clubs facilitate peer counseling which leads to empowerment as students help each other develop solutions to problems.

Mt. Edgecumbe High School, Sitka, Alaska

From the beginning, Mt. Edgecumbe High School (MEHS) has worked to involve students in school reforms and to develop leadership skills and self-determination. Students are consistently reinforced in their efforts to be self-empowered and motivated, to take responsibility for their learning and actions, and to utilize the principles of TQM (Total Quality Management) to produce work of high and consistent quality.

The principles of TQM are the main mechanism by which student self-determination is implemented. Even the initial process by which TQM was first implemented involved student feedback, participation, and training. After an MEHS teacher attended a workshop on TQM, he introduced the principles in his classroom, and students quickly took ownership. The students' first project was to utilize random sampling and statistical analysis to determine barriers to their study time. Both the process and outcome encouraged self-determination as students became excited about the principles of TQM and increased their productivity by eliminating barriers to studying.

Since that time, quality principles have been infused across the curriculum, helping students develop quality skills which affect how they work and think. Students learn to analyze, describe, and find solutions for problems, and to assess themselves and their activities according to statistical methods. All students and staff are trained in TQM. Students are empowered as their suggestions about the school--backed up by their research and surveys--are seriously considered and sometimes implemented by administrators. For instance, based on the recommendations of an improvement team (comprised of students and staff), the structure of the school day was changed from seven classes per day to four ninety-minute classes to allow more time for projects and in-depth learning. The very nature of TQM and the expectations for success make it impossible for students to remain in a traditional "teacher-student" relationship. Students are empowered to break out of the passive learning mode and take responsibility for their learning, in some cases even determining what areas they will focus on within the class outline. For example, one student pointed out that on a recent field trip, his class was responsible for determining which area they would focus on (for example, water condensation, salinity levels). This led students to look at learning differently and to take more ownership of the learning process.

Roy High School, Roy, Utah

Options are almost unlimited for students at Roy High School, where they are encouraged to take control of their learning and shape their future. At the center of the reform initiative is the student-driven counseling process, which culminates in individual Student Educational and Occupational Plans (SEOP), an individual planning process involving career exploration, self-awareness, career choice, and identification of an appropriate course of study.

Like the SEOP process, other elements of school operation are student-driven and encourage self-determination. Students can take advantage of flexible scheduling and flexible granting of credits to shape a course of study that best fits their needs. For example, a student might attend one or more early morning classes at the school, then take part in on-the-job training. Students can choose to complete their high school program early and can attend college as early college students or through concurrent enrollment. Departments are realigning assignments,

breaking down barriers, and collaborating to develop courses that better meet the needs of students and reflect the changing nature of content in many areas of study.

Administrators and teachers have started to plan and develop curriculum in all courses to match standards they developed. Students in the school must meet standards in communication, critical/creative thinking, social and personal development, self-motivation and adaptability, and preparation for options after high school. Simultaneously, Roy High School is reviewing authentic assessment tools and developing portfolios and performance criteria in order to develop a system that assesses to their standards. The result is that Roy High School is helping students meet standards which foster self-determination and developing assessment systems which allow students alternative ways to demonstrate their mastery.

Education for Employment, Kalamazoo County, Michigan

The most unusual of the Education for Employment (EFE) consortium's arrangements are the off-site occupational programs, which include law enforcement, hospitality, and health occupations. These programs, which take place at area businesses (e.g., a local hotel or hospital), encourage self-determination in students in a number of ways. They take the concept of "employability skills" to a higher level, beyond punctuality and dress codes, to professional ethics, teamwork, and responsibility for oneself, each other, the client, and the product. The instructors emphasize teamwork and character, holding students to high standards of professional ethics and conduct. They treat students "like adults," granting them more freedom to make choices for themselves, but within the contexts of teamwork, self-discipline, and personal responsibility for consequences. Through the EFE program, students can acquire a comprehensive knowledge of the careers and a realistic sense of what it would take in terms of time, money, and education to achieve their career goal.

For instance, the law enforcement program emphasizes qualities such as professionalism, conflict resolution, team building, and action planning. The instructor gives control back to students, teaching them self-evaluation skills, self-management, and work ethics. Students are organized into teams that set up professional procedures and roles for themselves. At least once each marking period, every student is supervisor for a week, keeping records, solving problems, and evaluating the team--experiencing the role of manager. Similarly, the instructor has adopted "issue management assignments" to deal with unprofessional performances. Students choose either to be subject to the discipline guidelines of their home school, or to adopt the "professional problem-solving mode." The latter approach requires them to evaluate the problem, identify the ideal solution, list objectives, build an action plan, and draw up an accountability contract.

Youth Transition Program, State of Oregon

One of the key components of the Youth Transition Program (YTP) is a commitment to fostering increasing levels of self-determination in students by teaching them to take increasing levels of responsibility for their lives: in school, in the workplace, and in their personal lives. Some students take classes that teach them social and work readiness skills, ranging from personal appearance to effective communication to the importance of punctuality and responsibility. Other students participate in a Job Club where they share work experiences and problems with other students and, with the help of an adult facilitator, discuss possible responses or solutions.

Students are also able to practice independent living skills such as balancing a checkbook, negotiating with landlords, and cooking healthy meals, in a school-owned apartment.

Through the YTP, students gain a clearer sense of their own strengths and weaknesses. Many students described the specific work behaviors they developed, and most commented that the program helped them develop the perseverance skills necessary to find and keep a job. They also discussed a range of work attitudes (e.g., attendance, punctuality, appearance, self-control, communication skills, and problem solving skills) in a manner that revealed ownership of these important attitudes and self-awareness in terms of the degree to which they had acquired them.

Students also seemed to have acquired an in-depth knowledge of the careers to which their YTP experience might lead them, and a real sense of what it would take, in terms of time, money, and education, to achieve their career goal. Many students commented that YTP was keeping them in school or encouraging them to return to school and providing options for school completion. Students also commented on how they have shifted career goals, felt comfortable leaving a job, explored various occupations, and tried things they never would have before.

Tiger, Inc., Rothsay, Minnesota

The students of Rothsay High School founded their corporation, Tiger (Teenage Innovative Group Entrepreneurs of Rothsay), Inc. in April 1991. The corporation was first established with the aim of promoting social activities for students, but has evolved into an organization that encourages entrepreneurship and student leadership in a variety of ways. Its main responsibility is the operation of the town's only grocery store, but members of Tiger, Inc. also operate a fitness center and run an entrepreneurial workshop for other school districts.

A common thread throughout Rothsay's educational programs is a respect for student ability and a commitment to empower students and develop leadership. Students are encouraged to be entrepreneurial--and are supported as they develop the skills necessary to research, assess, implement, and evaluate entrepreneurial programs. Students also develop work-readiness skills, such as responsibility, working in teams, and punctuality. They felt proud of the fact that they were running the only grocery store in their community, and accepted the concomitant responsibilities of consistently being on time, balancing the books, stocking the shelves, preparing the food, and ordering supplies.

ELEMENT SIX: SCHOOL-BASED CURRICULUM AND INSTRUCTION

At the heart of school-to-work reform is a transformation of curriculum and instructional practice that reflects a radical revisioning of schooling--radical, but rooted in the practices of John Dewey. Learning in the school-to-work system is "contextual," that is, learning that occurs in a real life context, or a close simulation of a real life context. Cognitive research has found that the typical classroom environment, characterized by lecture and passive learning, discourages many students from learning. Real environments, including workplaces, stimulate learning and engage students in a vital and active way.

Curriculum and instruction in transition systems must provide therefore multiple points of connection between the experiences of work and learning. School-to-work reform places intense demands on instructors, who must not only change what and how they teach inside the classroom,

but make sure that what they teach supports and sustains student learning in work-based settings. This necessity requires that instructors willingly abandon standard curriculum, lesson plans, and strategies for alternative and innovative approaches. Often, they must not only devise new curriculum and strategies, but do so in cooperation with other instructors and even with employers, by itself an unfamiliar process for many teachers.

The successful school-to-work curriculum in some manner integrates demanding academic study with up-to-date vocational instruction and work-readiness preparation. As many educators will testify, integrating academic with vocational study alone is far more complex than simply recombining curriculum or adding learning objectives. The reason for the complexity is that what is required is change in instructional practices. Courses of study that more successfully achieve integration seem to draw from the academic courses the high expectations and standards more typical of academic courses, and from vocational courses, the experiential, learner-centered, hands-on approaches more typical of vocational courses.

Whatever the classroom curriculum, it must connect in a rational and supportive way to the workplace learning experience, and in schools that have instituted articulation agreements, with that postsecondary curriculum as well. Often those who supervise students in the workplace know little about learning styles or youth development. Instructors or transition specialists will need to work in concert with employers to ensure that every student has a plan for what he or she will learn, a plan that sets forth competencies and standards and a way of assessing these. The classroom instructor, again, will be responsible for seeing that the classroom component is thoughtfully connected with the workplace learning.

It is also important that the school curriculum in some way prepare students for work and workplaces, beyond specific vocational instruction. Some schools offer separate courses in workplace readiness, others teach these skills as part of each vocational program, still others consider this instruction to be part of the coaching role played by a transition specialist or instructor. These skills include appropriate workplace behavior, ethics, and job-finding strategies.

To measure the learning that occurs in settings so unlike the traditional classroom requires assessment practices which are correspondingly different. The usual examinations and grading practices are rarely adequate measures. Many school-to-work programs have drawn up comprehensive sets of competencies (often in consultation with business partners) which students in that program are expected to acquire, at certain minimum levels. Others have established comprehensive standards towards which all the programs within a school or district are expected to strive. Others have experimented with portfolio assessment as the most accurate way to document a student's education.

Lastly, school-to-work curriculum has to be sufficiently flexible to provide enough options to accommodate the variety of learning styles and occupational interests to be expected in a group of secondary school students. In practice this requires flexibility in curriculum, in placement, in scheduling, and in assessment.

Youth Transition Program, State of Oregon

Individualized assessment, transition planning, and instruction are central components of Oregon's Youth Transition Program. Each student completes an assessment and receives an instructional program tailored to his or her needs. There are four categories in YTP's

instructional component: fundamental academics, vocational skills, independent living, and personal/social skills. The amount of each is geared to the individual student's transition plan. Most instructional activities, however, emphasize self-determination skills, providing students with opportunities to learn by taking risks and making choices. Instruction is offered through avenues which assure that students learn the vocational, social, and independent living skills necessary for success in the community. Students receive instruction in a variety of settings, including specialized classes at the high school, vocational education classes, community college course work, job clubs, and mentoring and independent living programs.

Performance-Based Diploma Program, Fort Pierce, Florida

The Performance-Based Diploma Program (PBDP) in Fort Pierce Central High School is a self-paced mastery learning program whose general goals are to provide an education that leads to a regular high school diploma for current dropouts and potential high school dropouts. The PBDP relies on a highly individualized approach to education, beginning with an assessment of each student which provides the basis for the student, counselor, and parents to develop a tailored educational and vocational plan together.

The academic component of the educational plan is mastered through computer-assisted instruction (CAI), an individualized, self-paced program which matches computer courses to Florida state graduation requirements in English, math, social studies, and science. The CAI system has been designed to respond to all program needs from entry testing and assessment to curriculum presentation and assessment. Students complete course elements and receive credit on a continual basis, enabling them to catch up on their academic credits and receive immediate gratification that appears to motive them to continue.

In each academic area, students work at their own pace. Most students are able to accumulate the credits needed for graduation in two years or less. They can complete a unit by taking a test, either by hand or on the computer, and they may take the test as often as they like. Performance reports are generated by the computer for each activity, and students can ask for their reports at any time. The typical report contains information on the student's status in a given course, listing activities, tests taken, scores, and averages.

Roy High School, Roy, Utah

Students in Roy must meet standards in communication, critical/creative thinking, social and personal development, self-motivation and adaptability, and preparation for life after high school. Under each area, a set of specific standards is identified. These standards have become the goals towards which teaching and assessment aim. They were arrived at through a process of research, discussion, and experience and will soon become the graduation requirements for students.

Once the standards were established, the high school began to plan and develop curriculum in all courses to match the standards. Simultaneously, it is trying to develop an assessment system that assesses to the standards. Portfolios and performance criteria are being developed and authentic assessment tools reviewed. At the time of the site visit, competency tests had been developed for home economics, health occupations, medical English, welding, foreign language, mathematics, chemistry, and other areas.

The high school also provides students with direct preparation for the workplace through its "critical workplace skills" course, an open-entry, open-exit course that offers applied and work-related training for students. Employers have worked with the school to create a curriculum that considers business needs. Instruction is provided in modules on critical thinking, quality control, applied math, technologies at work, work successes, workplace economics, computer literacy, and safety. Students are required to finish one module every two weeks and may also test out of modules.

Pasadena Graphic Arts Academy, Pasadena, California

The Pasadena Graphic Arts Academy prepares students for employment in the printing industry of greater Los Angeles. The academy model assumes an approach to instruction and curriculum fundamentally different from traditional classroom practice. The basic principle is learning by doing, or contextual learning--learning connected with real-world themes, careers, or experiences. Adopting this principle has meant small classes and lab sessions that rely on applied use of academic skills, cooperative learning groups, team problem solving, and mastery learning techniques. Teachers try to provide frequent feedback, basing grades and credit on performance. The model for instruction is teacher as facilitator, students as worker.

Academy instructors modify all academic subjects to complement lab sessions and illustrate the application of these subjects to printing. They must also integrate safety guidelines, work habits, and ethics into the curriculum. For example, academy students built a small printing press and made ink, applying the theory and practice of science to printing. Students produced booklets about biological reproduction, writing text that had to meet academic standards for both English and biology, and printing a booklet that had to meet technical printing standards.

In the academy's third year, the instructional staff began implementing a project-based approach that also featured a renewed emphasis on team learning. The instructors introduce a topic, then give students a list of projects and requirements from which to choose. Each student contracts to pursue a particular project for the remainder of the grading period. Most of the projects suggested are team-based, in order to encourage students to work together. Students find themselves working in a multi-task environment in which much of the responsibility for completing their work in a timely fashion rests on their own shoulders. This project-based, team-based approach approximates the work environment students will encounter in a real job.

ELEMENT SEVEN: WORK-BASED LEARNING STRATEGIES

In theory, most vocational programs offer actual or simulated work experience. Integrating work into the learning experience of students, however, is a more complex and demanding activity than simply placing students in workplaces. Successful transition systems offer a variety of work-based learning experiences, building on local labor market conditions and allowing for differences in student interest, aptitude, and developmental stage.

Schools and employers benefit from substantial flexibility to develop a school-to-work transition system that builds on local strengths and is tailored to local needs and circumstances. The local marketplace helps define the work-based opportunities available. Although business conditions constrain the options somewhat, effective school-to-work systems offer options, in

terms of type of occupation or industry and type of experience, and sufficiently varied to provide students with choices that will interest them.

Transition systems can include a menu of options such as business-based experiences, school-based enterprises, entrepreneurial programs, youth apprenticeships, mentorships, cooperative education, and service-learning. Programs also use a range of strategies--paid or unpaid work experiences, during the school day or after school, based in the school classroom or in a "community classroom"--and customize programs to fit the needs of youth, schools, business, and the local community.

Regardless of which particular options or strategies a system utilizes, it must provide support to students, staff, and business partners. Students must be supported by a system which assesses their readiness for work experiences, helps them attain workplace readiness skills, provides options which match students' career interests, helps them surmount any personal or logistical barriers (e.g. child care or transportation), and helps them understand and learn in their work-based learning experience. Casually placing students in a work environment and leaving them to their own devices will not engender a positive learning experience: the students must be monitored and supported so that they understand the criteria by which their work is assessed and receive continual feedback on their performance. The student's workplace assignment should be based on a workplace learning plan to which the student, school, and employer have all concurred, and the student's progress in that assignment should be monitored on a regular basis.

Staff must be supported by a system which recognizes that it takes time and resources to develop effective partnerships and work-based learning opportunities. Identifying and engaging appropriate organizations in the community to provide work-based learning opportunities takes time, commitment, and hard work. The work-based element also places intense logistical demands on its coordinators. Logistics such as school scheduling, labor laws, and insurance require special expertise as well as complex staff work. In addition, transportation of students to workplaces requires enormous amounts of coordination, as individual students travel to individual placements across a community or several counties. Most important, staff must have the time and capacity to work with work-based partners to structure experiences which allow students to learn actively, test out new roles, and develop competencies.

Finally, business or community partners who are willing to provide work-based learning experiences need a system which supports their efforts. These partners should have easy and reliable access to school-based coordinators, should clearly understand the goals of workplace learning, and should be assisted in helping individual students achieve success in their work environment. This may entail training or guidance to help supervisors of students ensure that learning and assessment of learning occur. In particular, the relationship with students' supervisors requires careful cultivation to ensure that the experience is not simply about performing rote tasks but about structured, task-based learning as well.

Education for Employment, Kalamazoo County, Michigan

A basic principle of EFE is to provide students with opportunities to experience real workplaces. To that end, a variety of "workforce entry" programs have been established. These include options such as one-time, three-hour "mentorships," paid cooperative education, unpaid externships, specialized training, and multi-year apprenticeships. Whatever the structure of the

arrangement, EFE staff try to tailor it to the individual student's career goal.

The most unusual of the consortium's arrangements, the one that most completely situates learning in the workplace, is the off-site occupational program. All instruction in these three programs--Health Occupations, Law Enforcement, and Hospitality--occurs away from the school buildings. Each program integrates academic study, professional skills training, and work experience, and each offers articulation credit at the local community college. The instructors emphasize teamwork and character, holding up to students high standards of professional ethics and conduct.

Business partners--a local hospital, juvenile detention facility, and hotel--provide classroom space in their facilities. Other businesses contribute by hosting students in job shadowing and externships. The lead instructors are, respectively, a registered nurse, a retired police chief, and a person experienced in the hospitality industry--people who know their industry firsthand. Besides their instructional role, they also are responsible for establishing and maintaining relationships with the businesses that provide placements for their students. The EFE staff have attempted to devise an appropriate support system for these instructors, supplying them with telephones and fax machines to ease communication, for example.

Rothsay High School, Rothsay, Minnesota

The original step toward introducing workplace learning into Rothsay High School's curriculum was the purchase of a hardware store and lumber yard that became known as the Storefront. Additional work-based learning opportunities arose later when a student-run corporation reopened the town's grocery store. In addition, the planned Global Trade Center and its communication technology will offer another vehicle for engaging students in business development. What these initiatives have in common is the goal of providing Rothsay's students with hands-on business experience that emphasizes entrepreneurship and leadership.

The Storefront is open six days a week. Nineteen seniors, including eight from a neighboring school, work one school period each weekday morning for academic credit. (Three adults cover the other store hours, working for minimum wage.) Seniors take Storefront as either a year-long or one-semester class, carrying out real business activities like data base management, spreadsheet applications, accounting, payroll, inventory, and marketing. All inventory and accounts are computerized. Students rotate among jobs, which have specific classifications like advertising or office work. Students with carpentry skills have constructed special orders like picnic tables and decks. Each student recognizes that he has a particular role and responsibilities: students arrive at the store, proceed directly to different locations, and begin to work.

The experience at Storefront is structured to ensure that students learn as well as work on the job. The class meets four days at the beginning of each semester in a regular classroom for orientation and review of procedures. Learning throughout the course is measured in two formal ways. At least once a quarter, students take a written exam that asks basic questions about store operations: preparing purchase orders, daily accounting procedures, and the like. Once a week, the instructor completes a ten-item evaluation for each student on such items as appearance, cooperation, and respect. Students rate themselves on the same form for particular strengths or weaknesses they assess in themselves.

The operation is overseen by a business teacher who serves as the store's general manager,

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for no extra compensation. All the Rothsay seniors at Storefront take an accounting class in the afternoon with him, where they learn the accounting skills they apply at Storefront. He decides upon inventory, makes recommendations to the school administration, and resolves problems. He also handles situations such as the two occasions on which the store took delinquent accounts to small claims court.

Youth Transition Program, State of Oregon

The Youth Transition Program (YTP) places students into paid community employment, where they receive training and monitoring from a transition specialist as well as follow-up services to help them remain successfully on the job. Transition specialists work intensively with students for the first three to four weeks on the job and then provide monitoring and support services on a regular basis. Transition specialists gradually reduce the level of support and supervision given to students. Ultimately, the goal is to enable students to perform their jobs with only minimal support from the transition specialist. At the same time, students participate in classroom instruction in academic, vocational, independent living, and personal/social skills to supplement on-the-job training. Once students complete the program, they are placed in either a competitive job, a postsecondary training program, or some combination. In addition, YTP staff provide follow-up services for at least two years after students leave the program.

YTP maximizes student outcomes by situating critical program elements in community-based settings. Students who have experienced school failure have markedly different experiences that reorient them in a positive direction to the world of work and learning. Off-site programs motivate students. Multiple agencies collaborate to sustain off-site programs.

Staff have also developed unique alternatives to more traditional job placement. By engaging in entrepreneurship, YTPs across the state have collaborated to create a temporary employment agency called BEST. Open to all students in the school system, BEST functions as an "employee leasing" program, rather than a traditional temporary employment service, matching entry-level positions to vocational training and employment experience for students. Another example of entrepreneurship is the Eugene YTP's Coffee Cart, a business at Sheldon High School that employs students and provides instruction in a more structured setting for students not yet prepared for job placement in the community. Coffee Cart serves gourmet coffee drinks and a menu tailored to the school community. Students learn about business operations, practice academic skills, and experience the success of working, while preparing for placement in the community.

Metro Tech Vocational Technical Institute, Phoenix, Arizona

At Metro Tech in Phoenix the critical role played by instructors carries over as students begin the transition to work experience. Instructors serve as both coaches and gatekeepers, preparing students for the workplace but refusing to recommend students they judge to be ill-prepared. They teach technical skills, job application procedures, and good work habits. Some instructors use their personal networks of industry connections to locate jobs for students, augmenting the work of the job placement office. The Culinary Arts Program issues a weekly bulletin describing job openings in the resort and restaurant industry, for example.

Several vocational programs run businesses staffed by students on the Metro Tech campus,

providing services to the neighboring community on a cost-recovery basis. Under the supervision of instructors, students perform skilled work, serve customers, and handle inventory, taking on real responsibility for managing and operating the business. For example, the Floral Design program operates "Flowers by Tech," where students make floral arrangements and deal with customers. The Child Care program operates "Tiny Tots" day care center, where Metro Tech students care for the children. The Culinary Arts program operates the Metro Tech Cafe and a banquet services facility, where students prepare food, set up tables, and serve customers in a busy and pressured atmosphere. Although these businesses operate on campus, they provide training environments that closely parallel actual businesses. Students cope with real customers, not just their peers. They do have the security, however, of a familiar place, instructors, and peers, among whom to experience work-based learning.

The Industrial Electronics Program at Metro Tech provides one model of work-based instruction. The program has two instructors, one of whom teaches basic electronics and theory, the other, hand-soldering and assembly according to Federal Aviation Administration standards. The second instructor is a retired Honeywell supervisor, with more than thirty years of experience in production and training. Honeywell provides his salary and his training. He teaches students, in a laboratory built by Metro Tech to replicate an actual production setting, exactly what a new Honeywell employee would learn in the company's training program, preparing them for employment as assembler trainees.

Aviation Magnet, Louisville, Kentucky

Related to the rigorous curriculum at Shawnee's aviation magnet is the importance of work-based learning. Whether this takes place through an internship, cooperative work experience, paid work experience, or flight instruction, the work-based learning aspect of the magnet program is critical to the overall program's success. Students learn firsthand about the industry, career areas, and what it means to be part of a work team. The close connection to their school-based learning is also very important. Teachers are able to link what students do in school with what they are doing in their work or flight experiences. This connection is very important for students, appearing to motivate many to perform better in school.

Students in the flight training component of the aviation magnet are required to gain firsthand flying experience in their senior year. They use the skills and knowledge they have gained from their classroom experiences over the previous three years, without which they would not be able to fly successfully and safely. Federal Aviation Administration regulations require a minimum of forty hours of dual and solo flight time in preparation for the private pilot's license. The magnet program offers up to fifty-two hours of flight time for each student. The twelve additional hours are provided to cover safety skills in flight. The aircraft is under the student's control the entire time. As students progress, they are guided through takeoffs and landings, turns, climbs, descents, and other maneuvers. Their training also includes solo flights, night flights, and lengthy flights that require several takeoffs and landings.

Patterson Career Center, Dayton, Ohio

The purpose of the Patterson Career Center cooperative work experience program is to expand beyond traditional classroom boundaries and provide students with opportunities to put

theory into practice and bridge the gap from school to full-time employment. Students are not sent out to worksites until their junior year. They spend tenth grade in career exploration and are not placed in a job until they have passed a series of proficiency tests for each level of study and are deemed mature enough to be placed in a co-op situation. This is determined through the co-op employment readiness evaluation, which is conducted by the tenth grade vocational instructors and the assigned outside job coordinator. Those who lack the requisite maturity or have other problems are placed in a volunteer position so that they will have a chance to provide themselves and eventually move into a paid co-op position.

Once it has been agreed that the student is ready for job placement, a cooperative training plan is developed by the jobs coordinator, with the involvement and agreement of the proposed employer, the student, and the student's parents. The training plan includes a schedule of work experience and a course of study paralleling it, detailing the responsibilities of each of the signing partners. The goal is to place the student with the same employer for both the junior and senior years, allowing the student to learn how to apply and mold the skills required by the employer in the eleventh grade, with the payback for the employer occurring in the student's senior year, as an experienced, confident worker.

Each cluster has several outside job coordinators who are charged with overseeing the work experience, communicating with both the student and the employer on a regular basis, as well as visiting the job site ideally at least once every two weeks. Problematic placements are visited more frequently. The in-building coordinators work with the students while they are in school. On Mondays after students return from their week at work, in-building coordinators hold vocational labs where they facilitate discussions that allow the students to reflect on the work experience and other work-related and general concerns. Students are required to fill out a workbook, which documents the time they have worked and notes any problems they are having. The workbooks help the coordinator develop lesson plans that are relevant to the students' actual work experiences. The workbooks and labs also help keep the classrooms up-to-date with what is happening in the work place.

ELEMENT EIGHT: INTEGRATED CAREER INFORMATION & GUIDANCE SYSTEM

Another critical component for effective transition systems is the integration of career counseling into the system. In addition to career information, assessment, and guidance, many of these programs provide mentoring and personal counseling activities. These services are not appendages but essential components of the system. Services must be ongoing, and every student should have an individual educational and career plan that is regularly reviewed and updated.

One of the most important factors in the development of effective career counseling is that it is at the hub of the larger, student-centered school-to-work transition system. As part of the system, career counseling must link back into earlier grades; age-appropriate activities should start in elementary school. It is essential that the career counseling system be person-centered and integrated around the student. The special education system serves as a model, as an area of education in which state and federal education mandates have influenced the quality and depth of counseling and transition support services. To best serve each student, there must be multiple points at which counseling can occur, and it must be ongoing and consistently available to

students. Equally important is the necessity that the school's counseling system tie into reliable, up-to-date labor market and job information sources.

School-to-work systems utilize a variety of delivery systems and roles which incorporate the above elements. Career counseling involves shared responsibility among counselors, teachers, parents, employers, and others such as rehabilitation counselors and job coaches. Some schools have chosen to redefine the roles of their counseling staff; others have created entirely new positions such as a transition specialist. The role of the transition specialist is to serve as a liaison between students and their school- and work-based learning experiences. The specialist matches students with work experiences, supervises or evaluates those experiences and links them back to school, serves as a resource to employers, and coordinates with counselors and teachers.

Roy High School, Roy, Utah

The core of the restructuring process in Roy High School is the comprehensive career guidance and counseling process. All students have an individualized Student Education and Occupational Plan (SEOP), which maps out their areas of career interest and classes designed to help them attain a job in that field. Starting in the ninth grade, students meet one to four times a year--more if necessary--with counselors, teachers, student guardians or parents, or other relevant partners to exchange information and help students structure an individualized learning plan. The SEOP is a living document, created through a process that allows for continual change as a student's needs and directions change. The process is student-driven, but counselors provide information, options, and choices. The typical process, which unfolds over the course of each student's time in high school, involves: meeting to discuss initial plans; career exploration; assessment; determining a course of study to meet career goals; providing information about supplementary courses or activities; and acceleration, enrichment, or remediation. A SEOP conference can be convened by a counselor, student, parent, or administrator at any time. The SEOP process has provided incentives, direction, and meaning to students' courses of study.

The academic advisement program supports counselors and the SEOP throughout the year. Each student selects an advisor from the teaching staff. Advisors are trained to provide assistance to students in evaluating credits, planning schedules, meeting graduation requirements, and making education and career choices. They also serve as liaisons between school and home.

The SEOP process is supported by the career lab as the hub of a comprehensive career information system offering assessment tools and labor market and occupational information to students via a network accessible at computer stations throughout the school. A number of user-friendly computerized career information and exploration software programs are available to students. In addition, students can explore college and scholarship possibilities and go through a personal assessment of attributes, abilities, and interests. The Career Lab also houses print materials on job opportunities, resume writing, job interviewing, and other career related areas of interest to students.

Student Career Opportunity Paths in Education, Veradale, WA

Central Valley High School initiated its school-to-work transition reform with a rethinking of the school's career guidance system intended to transform the curriculum, the school's connections with its community, and the school environment itself, as well as the guidance and

counseling process. Called SCOPE, or Student Career Opportunity Paths in Education, it has: reorganized the curriculum around six career paths designed to eliminate the vocational/academic split, paths organized around such principles as "business marketing and management," "technology in society," and "creative and applied arts." SCOPE also reorganized the guidance process around the development of individualized five-year plans designed to set student goals at least one year beyond high school graduation, and reorganized the curriculum and pedagogical approach so as to infuse classrooms with people and perspectives brought from the community and its workplaces.

Guidance and counseling services develop a five-year educational plan for each student, a specific and individualized course of study directed towards the student's career goals. The school adapted American College Testing's DISCOVER software, a comprehensive career guidance system that incorporates assessment and self-awareness with up-to-date information about postsecondary education and employment areas. Based on information obtained through an interest inventory students take in ninth grade, they decide on one of six career paths, with the result that they are placed on a career path before they actually enter high school. Students are not locked into this initial selection; they are free to change career paths at any time in high school.

Beginning with the student's career path enables the guidance counselor and the student to devise a five-year plan that sets forth the courses the student will need to take in order to pursue employment successfully in the chosen career. The fifth year could be military service, trade school, community college, a baccalaureate program, employment, or some combination that supports the student's career goal, but specifying the purpose of the fifth year, it is hoped, sets the sights of students beyond the limited goal of graduation. This approach reflects the new vision of Central Valley's staff, that rather than assuming that their purpose is to graduate students prepared for four-year college or university programs, they recognize that there are many paths towards preparing for work and life after high school. Each year at registration, students complete a new five-year plan, a process that requires them to reconsider their career objectives and the path to achieving those objectives.

Performance-Based Diploma Program, Fort Pierce, FL

A major component of the Performance-based Diploma Program is peer counseling. Students of different ages are grouped together with one teacher/facilitator to help one another cope with academic stress, personal problems, and social issues. The teacher, trained in peer counseling, coordinates with the PBDP guidance counselor on specific student or group process issues. The peer counseling groups are formed based on student time schedules. Every student, in addition to three academic lab periods, has a fourth period for peer counseling. Topics discussed include work, employment skills, money, finances, living conditions and arrangements, treatment by other students in the school, and classes.

Students are also able to informally access career information and counseling through mentors. Many students are matched to an adult mentor who meets with the student on a weekly basis throughout the year. Their employers provide release time to the mentors in order that they may spend time with their students. The mentors serve a variety of functions, including being a role model, offering strategies and formulas for achievement, passing on values of the business

community, and helping students understand the links between education and work. For some students, the mentors are a critical support person who listens to their problems and concerns and helps them arrive at strategies and solutions. They help students set short-term and longer range goals and show them how to break the cycle of failure that many have experienced.

Competitive Employment Work And Transition, Charlottesville, Virginia

One of the underlying themes uniting CEWAT is the "Comprehensive Transition Planning" process, which offers students career awareness, academic preparation, assessment, training, placement, and follow-up. CEWAT students conduct career awareness and exploration through a multitude of activities, including vocational assessment, individualized counseling, job shadowing, and mentoring.

CEWAT's individualized services and counseling utilize three stages of planning. The first stage is the development of the Individualized Education Plan (IEP), which forms the core of services designed for students with disabilities, with every student and their parents. Once students are formally accepted into CEWAT, they participate in an intake interview and the development of training agreements. If it is determined that a student will not complete the requirements for a high school diploma, students and parents explore options through a third process, the Certificate of Completion. Once a student is assigned to an employment specialist, program planning and monitoring are individually designed. Employment specialists assess student work readiness, assist in a job search, maintain information about jobs in the community, serve as liaison with employers, provide intensive support and instruction to students in the skills necessary to maintain employment, and conduct evaluations and follow-up.

CEWAT has developed a workbook provided to each student enrolled in the program. The book gives students an overview of the CEWAT program, enrollment procedures, and information about their employment specialist. Several sections guide students through job seeking, getting, and maintenance that reinforce the hands-on experience and assistance they receive from the staff and employment specialists.

Baltimore Commonwealth, Baltimore, Maryland

One element of the Commonwealth operating in all twenty-one Baltimore high schools is the career club. These are mostly attended by seniors, some juniors, depending on the school. Most schools support one career club of about thirty students, depending upon the Commonwealth staffing level for that school. Students attend the career club one hour a week.

Career clubs offer a very structured, competency-based curriculum that covers communication, life skills, and such employability skills as resume writing, job procurement, workplace behavior, and socialization. There is an attendance and minimal grade requirement for students who take part in career clubs, but students who show improvement are also accepted. Commonwealth staff also conduct one-on-one instruction, especially in working with students with learning disabilities or physical or emotional impairments.

The Commonwealth youth coordinator facilitates the career club and advises students, trying to match individuals with appropriate elements of Commonwealth programming. Because the youth coordinators are employed by the OED rather than the schools, and do not formally report to the guidance department, there was some concern that they would be regarded by school

staff as outsiders. It appears, however, that, in at least some schools, the coordinators have so successfully fit in that they are revered, as one principal remarked, as "part of the family," functioning somewhat as adjuncts to the guidance department.

ELEMENT NINE: PROGRESSIVE SYSTEMS THAT START BEFORE GRADE ELEVEN

Programs that do not start until eleventh grade miss the chance to make a difference for many students. It is crucial to reach younger students before they become discouraged, disengaged, or drop out. Common sense and research both support the concept that a student who understands the connection between school and work--between lifelong learning and a successful life--will be much more motivated to succeed in school.

Programs must take a progressive, sequential approach that includes preparatory, age-appropriate "feeder" programs starting as early as elementary or middle school. Children in elementary school can begin to understand the range of careers that are available to them through "Career Days," "take a child to work" days, field trips to different types of businesses, classroom visits from parents talking about their work, and career awareness and exploration integrated into the curriculum. Middle school students also benefit from field trips, career days, speakers (employers and workers as well as parents), and curriculum integration, but also learn from more intensive and informative strategies, including one-day job shadowing, summer internships, adult mentors, computer-based career information, and systems of educational planning for high school linked to careers. Students in high school explore career options in greater depth through more intensive job shadowing, summer internships, and individualized career planning.

Education for Employment Program, Kalamazoo, Michigan

In Kalamazoo, the career planning or Educational Development Plan (EDP) process begins in the eighth grade. Its purpose is to shift the emphasis to asking students what they want to be, rather than whether they are going to college. The consortium has eliminated the general education program, requiring students to choose either the baccalaureate or tech prep option.

All eighth graders take the ACT (American College Test) and CPP (Career Planning Program) tests to help them start determining their career interests. Also in the eighth grade, the approximately 2,500 eighth graders in the county attend a visitation day at Kalamazoo Valley Community College. Part of the purpose of the day is to expose them to career areas in eleven career clusters, and part is to familiarize them with the community college. Before the visitation, vocational counselors make presentations, and students complete interest inventories and choose career areas of most interest to them. Organizers prepare individual schedules for each student based on at least some of their top choices. Session presenters include business people as well as teachers or college faculty. Experiential learning experiences are emphasized to help students recognize interests and aptitudes: for example, planning a restaurant menu, producing a video, making teeth imprints, taking blood pressure, making a t-shirt.

The EDP process is fundamentally a process of long-range planning. Based on the testing and conversations among students, parents, and counselors, students begin setting career goals. They receive a notebook of career cluster options along with a listing of the necessary high school courses for associate and baccalaureate degrees. Sample jobs are listed within each "job family,"

and students meet with counselors to decide which courses would be best for them. Each student goes through this process to produce an individualized plan that shows what courses they need to complete in high school in order to pursue the career path of their choice, including community college and university training.

Shawnee High School's Aviation Magnet, Louisville, Kentucky

Shawnee High School's Aviation Magnet has made it a priority to reach out to middle and elementary schools, and has in effect become the aviation resource center for the school system. Shawnee sponsors field trips for non-Shawnee students and magnet faculty make presentations at elementary and middle schools to help students understand the magnet program. One staff member has developed a middle school curriculum called *The Sky's the Limit*. It is an aviation exploratory program which offers students an opportunity to learn about the field of aviation through a multi-disciplinary approach. Students learn about the science of flight, the importance of math and geography, and the history of flight. Students visit the airport, tour aviation related businesses, and receive instruction in a full motion simulator at Shawnee High School. The program culminates with each student flying an actual training aircraft. Not only has this program helped the magnet recruit, but it has effectively taught middle school students about aviation and the importance of this industry to the region. It has also shown middle school teachers how to teach different aspects of the curriculum through the lens of the aviation industry.

The system supports students in their freshman and sophomore years as well. As soon as students reach the Aviation Magnet Program, they begin the process of narrowing their career focus. During the first semester, all freshman in the magnet take an 18-week introduction to aviation course. This course covers all aspects of the aviation and travel industry, both technical and non-technical. After completing the course, students select their area of concentration. They may select avionics or flight training under the aviation component. Plans for an airframe/power plant maintenance concentration are being finalized. In the Travel and Tourism component, students can concentrate on travel and tourism or customer service. Within each component, students can choose a specific area of study. The curriculum is then divided into courses that reflect the specific nature of the different areas, with students taking two or three courses per semester in their area of concentration. By their junior or senior year, most of the students in Travel and Tourism are working after school in the industry and most of the students in flight training are flying.

Pasadena Graphic Arts Academy, Pasadena, California

In order to ensure that students are motivated, prepared, and aware of the opportunity to attend the Graphic Arts Academy, the Pasadena school district instituted a system which reaches out to elementary and middle school students in the area. Called ALIVE (Academic Learning Integrating Vocational Education), it is intended to be a systematic approach to improving technical education that "extends and elaborates" on the academy model. The concept offers a vision of technical education that begins in elementary school and extends into the postsecondary years. The transition system is designed to channel students forward with the options of employment and further postsecondary training. It is also designed to channel students from the middle schools into the academies. All students in grades seven to eight tour the academies.

They are allowed to transfer after eighth grade to the high school which houses the academy to avoid the disruption in friendships and other connections that make students hesitate to transfer after ninth grade. The district sponsors assemblies in ninth grade in which representatives of all the academies take part. Graphic Arts instructors also visit ninth grade classes.

In addition, of the three middle schools, two offer "pre-academies," which together enroll ninety students. The pre-academies are not organized around a specific occupational field, but they do engage students in teamwork, critical thinking, and computer studies. A Saturday Science Academy operates along similar instructional principles, enrolling students as early as fourth grade.

ELEMENT TEN: ARTICULATION WITH POSTSECONDARY INSTITUTIONS

Just as an effective school-to-work system begins before eleventh grade, it also extends beyond high school graduation. Given the reality of employment in the twenty-first century, with its demand for continual retraining and retooling, young people who do not believe they are capable of postsecondary training are placed at serious risk, simply by this attitude. Programs must provide multiple connections to postsecondary institutions, beginning when the student is still in high school and extending to provide post-high school education and training options. These arrangements at once greatly expand the training immediately available to high school students and offer them a ladder of opportunity towards progressively more advanced training and advantageous employment after high school.

Articulation with postsecondary institutions while the student is in high school may take the form of dual/concurrent enrollment, college credit for high school courses, acceptance by postsecondary institutions of alternative forms of assessment, such as portfolios or certificates of mastery, or an agreement that the postsecondary institution will grant credit for alternative instruction, such as work-based learning experiences. These arrangements expose students to high expectations in terms of their ability and responsibility to learn, and do so within an environment that supports them and helps them recognize that they can succeed.

School-to-work transition systems must also extend the bridges between secondary and postsecondary education to provide smooth passage for high school graduates to further education and training. Effective transition systems can utilize a variety of options, such as tech prep arrangements with community colleges, further articulation with a four-year college, traditional apprenticeship programs, and other structured training opportunities. The key is that the system must encourage a commitment to lifelong learning on the students' part and must be structured to provide information, resources, and accessible connections to postsecondary institutions. This element is particularly important in ensuring that transition systems promote equity, as programs which cannot ensure that postsecondary education is a viable option for graduates may result in a tracking system that places the better students in academic programs and the weaker ones in employment programs.

Patterson Career Center (PCC) Dayton, Ohio

The Patterson Career Center (PCC) in Dayton, Ohio offers students the choice of entering a career upon graduation and, at the same time, maintains a curriculum that is strong enough to

allow students to continue their training by enrolling in postsecondary education institutions. In order to encourage more students to aim for postsecondary training, a four-plus-two tech prep curriculum was designed to be offered at PCC and one other high school, using the magnet concept. In addition, a cooperative agreement between Sinclair Community College (SCC), the local community college and Dayton Public Schools awards successful vocational program completers advanced standing SCC at no additional cost to the students. SCC views itself as a very accessible and innovative community college, with a high degree of responsibility for serving members of the Dayton community, which includes offering free education to every graduate of PCC. The very fact that students can attend classes at SCC while enrolled at PCC opens doors for some who might not otherwise consider themselves candidates for education beyond the high school level.

The articulation agreement provides for joint faculty interchange and cooperation, as well as program enhancement and assessment that enable individual PCC students to receive recognition of educational efforts through the awarding of college credits for skill attainment. The articulation agreement coordinates the learning experience that PCC and SCC offer to students they serve, thereby reducing the cost, time, and duplication of learning. For example, the Quick Start program is targeted primarily to PCC seniors who can benefit from the advanced course content available at Sinclair. The project enrolls electronics, drafting, business, and allied health students during the school year. Courses are team taught by SCC and Dayton Public School personnel. Electronics students work in a robotics lab, while health students earn credit for an introductory nursing class. Marketing seniors learn how to start their own business through an SCC class in entrepreneurship. Office Specialist students study desktop publishing.

East San Gabriel Valley Regional Occupational Program, East San Gabriel, California

A major element of the East San Gabriel Valley Regional Occupational Program's (ROP) plan for transition is the articulation agreement, which has served as the ROP's primary strategy for connecting its students to postsecondary education. The ROP has enlisted as partners seven postsecondary institutions, including three community colleges and four state universities. The advantage to this strategy is that it avoids the negative assumptions sometimes made about school-to-work programs: from the beginning it works against the perception of an academic/vocational dichotomy and helps bring parents along. The amount of theory taught in the ROP courses, those involved believe, gave them the edge in obtaining articulation agreements. Most of the ROP's courses are articulated to the community college level, enabling ROP students to earn postsecondary credit while still in high school, saving them time and money and encouraging some to consider college for the first time.

More than two dozen ROP programs are articulated, with some of these agreements carrying all the way through to the university (2 + 2 + 2). ROP staff spend considerable time meeting with community college and university staff on articulation matters, and attend the monthly meetings of articulation councils. Since the late 1980s, the ROP and its postsecondary and business partners have operated the Los Angeles Area Tech-Prep Consortium in order to advance these agreements.

Upon completing ROP classes, students obtain an articulation equivalency form from their instructors. Filing this form with the department chair at the college upon enrollment enables

students to obtain college credit, advanced placement, or partial course fulfillment.

Pasadena Graphic Arts Academy, Pasadena, California

Advanced technical training is made available to Graphic Arts Academy students through articulation agreements signed between the school district, Pasadena City College (PCC), and California State University at Los Angeles. Beginning in their junior year, students may take classes at PCC, and they are required to do so as seniors in order to receive the specialized academy high school diploma. The equipment at PCC is more state-of-the-art than the academy's, enabling students to learn more advanced skills in such areas as computer typesetting, lithographic preparation, lithographic press operation, management, and screen printing. For their PCC classes, students can earn dual credit from both Pasadena High School and PCC.

Once they have completed fifteen units from PCC as well as four semesters of lab work in the academy, PCC automatically grants students twenty-one units of credit. With forty or more additional credit units, which can be completed in one year after high school, students can earn a certificate in printing from PCC in one of four crafts areas or in printing management. Another forty-five units of earned credit in academic subjects earns a student an associate degree from PCC. A student can apply up to seventy units of this credit in transfer to the bachelor of science program in printing management at California State University at Los Angeles. In effect, this represents a carry over of credits earned in high school to the university.

ELEMENT ELEVEN: CREATIVE FINANCING

Obtaining seed money for reform in its early stages is almost always a critical element of school-to-work initiatives. Creative approaches to financing that leverage a variety of options are more typical than the exception. Many initiatives have drawn on federal funding, including Perkins Act and other vocational and special populations grants. Where the state government has supported tech prep and related reforms, state funds have made a significant difference. In some states, funds for educational reform, including specific set-asides for school-to-work transition, have helped schools initiate school-to-work reforms. Business has provided funds, in-kind contributions, and human resources that have not only underwritten specific programs, but offered evidence of corporate support that often helps leverage additional support. Interagency agreements that allow education programs to draw on other governmental funds, particularly those set aside for employment and training or for special populations, have greatly benefitted school-to-work transition systems in several states.

The crucial skill in securing funding is creative leveraging. None of the communities studied by AED made its school-to-work initiative happen by obtaining one large grant to support it. Instead, administrators imaginatively patched together and coordinated funds from diverse sources, coping with the multiplicity of funding categories and regulatory requirements.

Youth Transition Program, Oregon

The Youth Transition Program was collaboratively developed and co-managed at the state level by the Oregon Department of Education, the Oregon Vocational Rehabilitation Division (OVRD), and the University of Oregon. The funding of YTP reflects the collaborative nature and

management of the program. The OVRD provides a dedicated full-time position to the YTP effort, and federal vocational rehabilitation funds are matched by local education agencies. Participating school districts support the salary and fringe benefits of the teacher who is assigned to coordinate YTP locally. The actual provision of services is supported by OVRD, which awards contracts to local school districts. This funding structure offers local districts the opportunity to develop a YTP through a competitive process. School districts and educational service districts apply for two-year grants, which are made available on a continuation basis as schools restructure and refine traditional ways of providing services to students with disabilities. Additional support is provided by collaborating institutions through training and technical assistance.

Comprehensive Employment Work and Transition (CEWAT), Charlottesville, Virginia

Starting with about ten students and funded by the Virginia state department of education, CEWAT had developed into a collaboration of public and private agencies and programs serving 115 students in the 1993-94 school year. A collaborative relationship for service delivery has been developed between the Charlottesville Schools, a private nonprofit employment services agency, and the local Private Industry Council (PIC). School system funds and JTPA funds (provided by the PIC) together support job seeking, subsequent training, and follow-up services needed to ensure successful community employment for students. Combining funds allows the high school to purchase cost-effective vocational transition support services. For example, the school system provides funding for the vocational planner who coordinates CEWAT and for half of the placement services, including two employment specialists, and JTPA funds cover the other half of the placement services.

Education for Employment, Kalamazoo County, Michigan

Education for Employment (EFE) has a history of winning private and public grants that pay for new activities but also sustain important connections with state, national, and even international policy makers. Basic funding for the EFE comes from both the basic vocational education grant and an array of discretionary grants secured by the Kalamazoo Valley Intermediate School District. According to administrators, the discretionary grants have made possible many of the innovations introduced under EFE. For example, EFE received funding under the Perkins Act for twelve years to encourage the enrollment of nontraditional populations in vocational programs and to discourage sex bias and stereotyping. These funds have paid for social marketing, counseling, and technical assistants--classroom aides who help students master course content, provide support, and assist with exams and studying. With support from the German Marshall Fund, EFE administrators were able to observe school-to-work programs in other countries. Grants and technical assistance from Jobs for the Future (JFF) have been especially important to the EFE Health Occupations Program and connected the EFE into the JFF network of programs.

Metro Tech Vocational Technical School, Phoenix, Arizona

Metro Tech staff are quick to point out how important their Perkins Act grant has been to their reform efforts, especially to academic infusion and technology-based instruction. Acquiring that grant enabled the district to embark on a focused drive to integrate academics into vocational

education. The leadership chose as its primary strategy the application of writing and mathematics across the curriculum. The grant paid for equipment, software, released time, instructional aides, evaluation, and teacher reassignment. Factors that contribute to Metro Tech's success in pursuing funding include an administration that made pursuit of external funding a priority and the school's commitment to populations who are targeted for special funding. Metro Tech also had in place a system to see that the monies were well-managed: a comprehensive plan and an administrative structure created to manage their expenditure. The new funds were applied to goals and strategies previously endorsed by the school staff, in an institutional climate supportive of reform.

Rothsay High School, Rothsay, Minnesota

Although Rothsay's business community is tiny and includes no major employers, the school has engaged businesses in various ways. The Rothsay Community Development Corporation provided financing for Tiger Mart, the student-owned and operated grocery store. The Otter Tail Power Company provided advice on energy conservation and two free months of electricity to the grocery, and the local bank and grocery wholesaler have also provided assistance and advice. A software distributor donated software and training to Storefront free of charge.

Rothsay's successful pursuit of a variety of private grants has purchased inventory for the Storefront, paid for entrepreneurial workshops, and supported planning for a "global trade center," besides underwriting the school-community coordinator position. These monies have been extremely important to Rothsay, which, like many other small school districts, has faced a perilous financial situation for several years, a threat always in the background of its reform efforts.

ELEMENT TWELVE: APPLICATION OF RESEARCH

A number of the sites studied by AED consciously drew upon existing research, conducted their own research, or commissioned new research in order to plan, assess, or strengthen their school-to-work system. They made use of the research for three different purposes: to provide a foundation for a program model, to assess the local labor market and economy, and to measure the impact of the program on students, specifically how their students performed in school and their graduates fared in the worlds of work and postsecondary education. Using research in these ways also brought a number of secondary benefits, as the findings helped justify the school-to-work system, affirm to the staff the importance of their work, leverage additional resources for its support, and provide feedback that could be used to improve and refine different aspects of the reform initiative.

East San Gabriel Valley Regional Occupational Program, East San Gabriel, California

The East San Gabriel Valley Regional Occupational Program is unusually committed to research and evaluation. The staff describe their curriculum as research-based: studies of market trends and student follow-up studies help the staff match their programs with economic reality. The ROP also uses research to assess the impact of its training on students. For example, a four-year comparison study of students who did and did not take part in ROP programs found a number of positive outcomes for students who did, including higher retention in school, higher employment rates, higher rates of job promotion, and nearly twice the rate of participation in postsecondary education. The ROP has contracted with a research group at the University of

California, Riverside to conduct the outcome research over several years.

Youth Transition Program, State of Oregon

The design of Oregon's Youth Transition Program offers an excellent example of the translation of research knowledge to practice. The interagency model of the YTP includes three components: (1) a state-level administrative organization that supports ongoing collaboration; (2) an in-school component, with the school and vocational rehabilitation staff providing services to students while they are still in school; and (3) a postsecondary component, where collaboration results in providing students with transition to a variety of postsecondary training and employment opportunities and follow-up services. Each of these components was developed on the basis of previous research, including findings from secondary special education programs, transition, and systems change in education.

YTP has also carried out comprehensive evaluations to document the impact of the program on specific student outcomes and systems change. Data are collected from each site on a variety of demographic and programmatic factors, over a two-year follow-up period, and analyzed several ways. First, the outcome data are analyzed relative to the outcomes of comparison groups, including a statewide sample of students with disabilities who exit school, a sample of non-YTP clients across the state, and a nationwide sample from the National Longitudinal Transition Study. Second, YTP examines student outcomes separately for two groups of program participants: rural versus nonrural YTP participants, and YTP students identified as at risk compared to those not considered at risk. YTP students consistently have better outcomes in terms of wages, employment, and productive engagement. Rural students fare as well as nonrural, and at risk as well as those not at risk.

Roy High School, Roy, Utah

Roy conducted extensive research on comprehensive career guidance as the basis for the Student Education and Occupational Plan (SEOP) process. Since that time, Roy's restructuring process resulted in a heightened awareness of the importance of teaching directly to standards, and again, the staff turned to research, discussion, and experience to create a process through which to arrive at standards. The new standards reflect a commitment to prepare students in five critical areas: communication, critical/creative thinking, social and personal skills, self-motivation and adaptability, and preparation for life after high school. Under each area a set of specific standards is identified, and in the near future, these standards will become the graduation requirements. The school has begun to plan and develop curriculum in all courses to match the standards. Simultaneously, staff are trying to develop a system that assesses to standards. Portfolios and performance criteria are being developed and authentic assessment tools are being reviewed. The entire process has been research-driven.

Conclusion

Based on the experiences of the exemplary programs visited by AED/NIWL, we have identified twelve elements that represent the necessary and sufficient conditions for an effective school-to-work transition system that provides opportunities for young people to acquire the

knowledge, skills, and credentials that will enable them to move successfully between the worlds of education and meaningful work. Several other national organizations have published analyses that identify key elements of school-to-work programs, including the Manpower Demonstration Research Corporation (Pauly et al 1994) and Jobs for the Future (Goldberger et al 1994). Research on school-to-work in America has achieved a scope and quality to contribute substantially to the design and implementation of state and local systems over the next few years.

V. CONCLUSION: FUTURE PRACTICE AND RESEARCH

The findings of the case study process have many implications for future practice and for further research. The twelve elements summarized in the main body of this report, obviously, represent the heart of what we hope to convey practitioners. As states and local districts design and implement new school-to-work systems, the challenge will be both to recognize the importance of these twelve elements, and to devise strategies for integrating them into effective systems.

Commonly, however, implementers of school-to-work reform encounter regulatory and other legal barriers. Such barriers interfere, for example, with workplace learning opportunities (i.e., FTEs, occupational safety, child labor laws), and with admission to postsecondary institutions, which often have admission requirements that accept academic but not occupational courses for credit, regardless of the actual content of the course. Practitioners in some states have eased these barriers in the interests of school-to-work system building; in others, much remains to be done.

The case studies found one group of partners conspicuously absent from school-to-work programs: parents. Because parents are so important in their children's lives, and because they often emphasize admission to a baccalaureate program above other career and educational goals, it is crucial for practitioners to engage parents in school-to-work.

By contrast, the case studies document many examples of business partners contributing in important ways. Practitioners cannot expect that many businesses, most of which operate on a close margin of profit, will participate in school-to-work out of altruism. Practitioners should anticipate the need both to actively woo business, and to educate business about the range of benefits that may accrue to them through participation.

The case studies found many devoted teachers applying themselves to the implementation of school-to-work reform in their classrooms, with varying amounts of assistance. Most of these teachers had little previous exposure to the profound pedagogical, curricular, and assessment reforms they were being asked to implement. To ensure the long-term success of school-to-work reform, both inservice and preservice teacher training should incorporate instruction concerning school-to-work and offer internships and other opportunities for teachers and prospective teachers to explore firsthand a variety of workplaces.

Even though the intent of the case studies was to examine school-to-work programs, the research teams often encountered people who knew little about it. Publicity about school-to-work needs to be expanded to reach parents, students, prospective employers, policy makers, and other leaders at the local, state, and national levels. People who do not understand school-to-work, let alone how it could benefit themselves, are unlikely to make great efforts to facilitate the development of new systems.

In addition to these immediate implications for practice, our findings suggest a number of areas in which further research would be beneficial: to clarify the impact of school-to-work reform on students, the impact on employers, the relative effectiveness of various reform strategies, the development of systems for school-to-work, and the implications for financing school-to-work systems.

We recommend several avenues for exploring the impact of school-to-work reform on students. First, additional long-term follow-up studies of student outcomes are needed: the ideal study would examine students six months, eighteen months, three years, five years, and ten years after graduation, seeking information about their employment status, pursuit of postsecondary education, income level, independent living, and evidence of connection between their school-to-work experience and these outcomes. Second, we recommend studies that consider student outcomes in youth development terms--such psychological and social characteristics as motivation, self-determination, responsibility for oneself and others. Adults and students often reported to the AED/NIWL research team dramatic instances of such change among students. Third, we recommend cognitive studies of the impact on students of "contextual learning": educational settings in which students learn in real-world contexts, a basic aspect of school-to-work learning. Fourth, we recommend intensive case studies of students in workplaces over time, enabling us to learn more about the relative effectiveness of different strategies for integrating learning into workplaces, the types of skills transmitted, the quality and clarity of assessment practices, and the perceptions of students and their workplace supervisors about these experiences. Fifth, we recommend further research concerning access to and equity of STW programs: studies of student tracking, equal educational and occupational opportunity, and gender and racial stereotyping. Sixth, we recommend analyses of the costs and benefits to students of working, both in terms of the impact of working while in school and public perceptions of students who work. Seven, we recommend further case study research on pedagogical and curricular changes, focusing on direct relationships between specific interventions and specific learning or developmental changes in students.

Based on our findings, we also suggest research to examine how employers and postsecondary institutions perceive the impact of school-to-work experiences on students who arrive at their doors as workers or college students. These studies will be important simply to discover how important partners in the school-to-work effort perceive the results of these initiatives, but also as a source of comparison data with other outcome studies.

As noted earlier, the research teams found scarce evidence of parent involvement in school-to-work, leading us to recommend examination of effective strategies for engaging parents. The research literature provides ample evidence that students whose parents are engaged in their learning perform better in school. Given the tendency of many parents to emphasize college education to the exclusion of occupational preparation, parent involvement could be key to the long-term success of school-to-work systems.

In addition to research related to learning, we recommend research concerning the costs of school-to-work reform, both real costs and costs calculated in terms of cost-benefit analyses. Remarkably little is known about the real costs of school-to-work, considering the importance of budget issues to policy makers and practitioners. And if we set aside the analysis of real costs for cost-benefit analyses--considering such factors as the costs to society, business, and personal lives of unemployable high school or college graduates (and dropouts)--we will add another level to our ability to discern the most effective financing strategies for education.

Finally, we recommend two areas of research related to system building. First, the case studies indicate the school-to-work system building unfolds over many years, indicating that research that tracks systems development over time could offer important lessons to architects of

school-to-work as well as to other system builders. Second, we recommend research that documents more and less effective practices for aligning educational systems across levels, eliminating traditional dividing lines between elementary school, middle school, high school, and postsecondary education.

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APPENDIX A

SITKA, ALASKA: *Mt. Edgecumbe High School (MEHS)*

Mt. Edgecumbe High School offers an unusual example of a school preparing students for a dynamic global economy. Because MEHS is Alaska's only public residential school, students come from all over the state and represent many different ethnic groups. MEHS classes reflect Alaska's close ties to the Pacific Rim, and emphasize the development of entrepreneurial skills. Because Alaska's geography requires distance learning, administrators have identified technology as the future of work and learning and invested substantially in equipment and training to ensure that students are able to hook into computer networks and operate sophisticated equipment. Above all, because success in the future requires the ability to change, adapt, and engage in critical thinking, MEHS helps students develop self-determination skills and engage in a process of critical review and evaluation. The process is guided by the business-derived principles of Total Quality Management and MEHS's own Continuous Improvement Process.

Key features:

- emphasis on entrepreneurship, critical thinking, technology, and Pacific Rim studies
- engagement of students and staff in school restructuring
- creative ties to global economy

PHOENIX, ARIZONA: *Metro Tech Vocational Institute*

The defining fact of life for Metro Tech is its students, about one-third of whom have dropped out of school or never attended high school at all. They face many barriers to completing their education, ranging from poverty and illiteracy to single parenthood. In response, Metro Tech has responded with a school-to-work initiative that is not a single innovation, but rather a collection of elements held together by a vision for accomplishing fundamental school reform within a vocational school. These elements include curriculum integration, campus-based student enterprises, work-based internships, and technology-based instruction. Metro Tech has a history of long-term partnerships with such major businesses as Honeywell Commercial Systems Flight Group, AAA of Arizona, Big 4 Restaurants, and Goodwill Industries, which have made extraordinary contributions to the school and its students.

Key Features:

- academic and vocational integration
- technology-based instruction
- campus-based enterprises

EAST SAN GABRIEL, CALIFORNIA: *East San Gabriel Valley Regional Occupational Program (ESGVROP)*

Serving many minority and poor students in an area threatened by gangs, the East San Gabriel Valley Regional Occupational Program (ESGVROP) is an outstanding example of an urban school system rising to the challenge. ESGVROP provides vocational, academic, and

support services to prepare students to continue their education or obtain employment after high school. Emphasizing active collaboration, ESGVROP cultivates partnerships with businesses, service agencies, and other educational institutions. Business partners serve on advisory committees, provide labor market data, serve as mentors and job coaches, and provide classrooms for worksite training. Classes are articulated with postsecondary institutions, in some cases through baccalaureate programs. Administrators and staff of ESGVROP strive for flexibility in arranging transportation and schedules and providing other support services. An emphasis on research conducted in collaboration with other educational institutions drives the development of ESGVROP programs.

Key features:
- more than 300 collaborative partnerships with business and community
- articulation with several postsecondary institutions
- reliance on research and program assessment

PASADENA, CALIFORNIA: *Graphic Arts Academy*

To the north of Los Angeles, Pasadena High School educates a multicultural population whose diversity reflects the changing face of the United States in the 21st century. The Graphic Arts Academy is a school-within-a-school, serving about 100 students in grades 10-12. The Academy resulted from a partnership between the high school and the Printing Industry Association of Southern California, which represents more than 1900 printing businesses in the greater L.A. area. A team of five teachers is responsible for the integrated curriculum, which combines academic instruction with vocational training in classes deliberately kept smaller than regular high school courses, allowing for more cooperative learning and student-teacher interaction. Sophomores and juniors take almost all their course work within the academy; as seniors, they take advanced courses at Pasadena City College.

Key Features:
- academy model
- academic and vocational integration
- active partnership with industry association

FORT PIERCE, FLORIDA: *Performance-Based Diploma Program*

Situated in Fort Pierce, Florida, the Performance-Based Diploma Program enrolls students from throughout St. Lucie County who are considered at risk of dropping out. Designed as a school-within-a-school, the program is a self-paced mastery learning program. Students master academics through a computer-assisted instruction (CAI) program. Instructional leadership is crucial, for although the computer provides the lessons, teachers must be able to help any student in a classroom of 30 pursuing 30 different lessons. For vocational study, students choose from traditional high school vocational classes, a dual enrollment program at the community college, an internship program, or employment at a job they find on their own. All students participate in individual and small group peer counseling.

Key Features:
- self-paced mastery learning
- school-within-a-school
- options for vocational study

LOUISVILLE, KENTUCKY: *Shawnee High School's Aviation Magnet*

Flying planes, arranging travel reservations, calculating complex flight patterns and time zones, running a cruise ship, and repairing complicated technical equipment--this is all in a day's work for students at Shawnee High School's Aviation Magnet. Within the two strands of Aviation and Travel & Tourism, students actively engage in learning the concepts of their chosen industry, couched in practical examples and the real-life experience of instructors and students. In the Aviation program, students participate in flight training and can earn a Federal Aviation Administration Certified Pilot's License or Federal Communications Commission License by the time they graduate. Students in Travel & Tourism participate in domestic and international internships in which they study and are responsible for all aspects of hotel, travel agency, and cruise operations.

Key features:
- magnet program
- active partnership with major area industry and local employers
- interdisciplinary curriculum

BALTIMORE, MARYLAND: *Baltimore Commonwealth*

The Baltimore Commonwealth is an unusual partnership through which the city's business, education, community, and government sectors have joined forces to try to improve the prospects of Baltimore's high school students for academic achievement, college opportunities, employability, and personal development. Baltimore's Office of Employment Development has created a one-stop shop for student services and for businesses interested in employing students. Under the aegis of the Commonwealth, an array of programs and services is provided, ranging from internships to summer jobs to permanent employment, from career exploration to job readiness skills preparation. Career Clubs for seniors, offered during the school day at high schools, provide career counseling and coaching to students on specific job-getting and job-keeping skills.

Key features:
- city's Office of Employment Development plays key role
- career clubs for seniors
- emphasis on marketing to business partners

KALAMAZOO, MICHIGAN: *Kalamazoo Valley Consortium Education for Employment Program (EFE)*

A county-wide consortium, EFE coordinates a system of occupational education throughout Kalamazoo County, an area that includes 1.7 million students and nine school districts. The

EFE's mission is to provide all students with opportunities to obtain basic educational skills, occupational skills, and employability skills. The system consists of more than twenty occupational programs, several worksite-based occupational programs, counseling and information services, and articulation agreements. The EFE has successful partnerships with major businesses such as the Radisson Hotel and two local hospitals, which have provided facilities for work-site based occupational programs. Kalamazoo Valley Community College is a full member of the consortium. The system has its own staff: an assistant superintendent, three area administrators, and several vocational counselors and workforce entry coordinators.

Key features:
- county-wide system based upon a decade of K-14 collaboration
- network of administrators and workforce entry coordinators
- worksite-based occupational programs

ROTHSAY, MINNESOTA: *Tiger, Inc.*

The rural town of Rothsay, Minnesota boasts a population of 450, harsh winters, a lagging economy--and an innovative high school which addresses these issues and prepares its students for work in creative ways. Rothsay High School's strength lies in its ability to adapt to challenging economic circumstances and prepare its students to do the same. Supported by a faculty advisor, students in Rothsay High School formed a corporation, Tiger, Inc., in 1991. Tiger, Inc.'s first enterprise was in response to community need: they took over the town's failing grocery store. Rothsay students receive credit for their work with Tiger, Inc. and for staffing the grocery store and the Rothsay hardware store in capacities such as accounting, advertising, office work, and carpentry. Rothsay students also host an entrepreneurial workshop for students and educators from across Minnesota. Teachers attempt to integrate vocational and academic study, teaching specific work skills as well as exploring careers.

Key features:
- student-run enterprises
- offers work experience despite a limited economy
- informal but powerful community ties

DAYTON, OHIO: *Patterson Career Center*

Originating in 1913 as one of the first cooperative education centers in the United States, the Patterson Career Center today tackles the many serious problems that confront urban school systems. Patterson strives to offer its students, 82% of whom are disadvantaged, a variety of options in an administrative structure that promotes participatory management within a broader restructuring process. Working closely with local employers and the community college, Patterson Cooperative High School offers 11th- and 12th-grade students a schedule that alternates two weeks of classroom instruction with two weeks of full-time work at the job site in an eleven-month school year. Teams of academic and vocational instructors hold regularly scheduled "cluster" meetings several times a week to assure that academic and vocational components are integrated.

Key features:
- administrative flexibility
- alternating academic and work experience
- strong long-term ties with local community college and local employers

EUGENE, OREGON: *Youth Transition Program (YTP)*

Policy makers and practitioners across the country agree that the creation of a seamless school-to-work system for youth requires restructuring systems, but Oregon is one of the few states that has begun restructuring on a statewide level. Oregon's Youth Transition Program is a collaborative effort among the Oregon Department of Education, Oregon Vocational Rehabilitation Division, University of Oregon, and public schools in local communities across the state. YTP currently operates in 26 sites across Oregon, helping youth with disabilities make the transition from school to work. YTP aims to provide a "new pattern of services" to students with disabilities by achieving two goals: enhancing the ability of students to enter competitive employment after leaving school, and creating systemic change within schools and agencies serving students with disabilities.

Key features:
- statewide program building on extensive interagency collaboration and resource redistribution
- focus on students with disabilities with wider application for all students
- instruction in academic, vocational, independent living, and personal/social areas

ROY, UTAH: *Roy High School*

Options are almost unlimited for students at Roy High School. Because Roy is part of a state-level reform effort, administrators are able to develop flexible schedules for students, resulting in early graduation, innovative use of credits, and articulation with postsecondary institutions. The core of Roy's innovation lies in its comprehensive counseling and guidance program, which culminates in a Student Education and Occupational Plan (SEOP) individually crafted for each student. SEOP sessions, held with students and their parents several times a year, involve a process of career exploration, self-awareness, career choice, and identification of an appropriate course of study. Students learn more about their options through extensive counseling, a career center with computer accessibility throughout the school, a workplace skills course, and assistance from the local job services agency. Students must meet standards in communication, critical/creative thinking, social and personal development, self-motivation and adaptability, and preparation for life after high school.

Key features:
- comprehensive guidance and counseling program
- individual Student Educational and Occupational Plans
- early graduation and expanded day, week, and year courses

CHARLOTTESVILLE, VIRGINIA: *Comprehensive Employment Work And Transition*

Based in Charlottesville High School in Virginia, CEWAT was initially created to help students with disabilities find paid job placements and develop good work behaviors, but is

undergoing its own transition as it expands its services to at-risk students. Through a partnership between the school and a private nonprofit employment and training agency, CEWAT provides employment specialists who work with students to help them identify job prospects, apply for employment, and negotiate any difficulties that arise after they are hired. A network of employers, including a university dining service, grocery chain, and nursing home have hired students through CEWAT. CEWAT also connects students to assessment services provided by the state Rehabilitation Services Administration and to skills training provided by the vocational-technical center. The process of developing Individual Education Plans (IEPs) for students with disabilities now includes planning for transition to work.

Key features:
- school partnership with a private nonprofit employment and training agency
- support system of job coaches and school-based coordinator
- IEPs that incorporate transition planning

VERADALE, WASHINGTON: *Student Career Opportunity Paths In Education (SCOPE)*

At Central Valley High School, half an hour from downtown Spokane, Washington, all students take part in SCOPE, a comprehensive career information and guidance program designed to get students thinking about possible careers before they begin high school. Through inventories of their interests, experiences, and skills, students identify with one of six career paths, each of which contains many career options. Students can then access both printed and computerized information about the education they would need to pursue a specific career. Equally fundamental to SCOPE is the infusion throughout the school curriculum of career-related activities, ranging from research assignments, to speakers, to work experiences. The school hired an experienced local business leader to arrange community placements to provide students with career experience.

Key features:
- career information, assessment, and guidance system
- career-related activities infused across the curriculum
- community resources coordinator

ASSESSMENT OF THE OUTCOMES OF THE REFORMS

An educational reform that engages as many players and as many levels of the educational system as does school-to-work transition reform has the potential to achieve significant outcomes for many people and institutions. AED/NIWL's study documented evidence of such outcomes for students, business partners, schools (from elementary grades through college), and other partners to the STW collaboration.

Outcomes for Students

The genesis of the school-to-work movement was the widespread concern that students were leaving high school unprepared for work, lifelong learning, and citizenship. These undesirable "outcomes" remain the impetus behind the current movement. But is there evidence that school-to-work is making a difference?

Our findings suggest that it is important to look both at long-term outcomes for young people and at short-term outcomes--changes that occur while students are enrolled in a school-to-work program. A few sites in the AED/NIWL study had gathered sound data concerning long-term student outcomes in the categories of employment, postsecondary education, and income, and evidence of connections between these circumstances and their secondary school STW experiences. These studies indicated that, a few years after graduation, STW graduates were more likely to be employed, more likely to access postsecondary training, and had higher incomes and professional standing than their peers who did not experience STW. It is one of our recommendations for further research, however, to collect more data on these long-term outcomes for students: employment, independent living, postsecondary education, income, and professional standing.

While these long-term outcomes have an undeniable bottom-line importance, AED/NIWL urges that the short-term outcomes we have documented also be valued, both because of their intrinsic importance, and because they enable students to achieve the long-term outcomes that are the ultimate goal of STW. We found short-term outcomes for students in terms of skills and knowledge, career direction, motivation, and empowerment.

Teachers, administrators, employers, and students themselves at the case study sites reported skills development as a key outcome of STW programs. Most programs are reported to be effectively teaching occupational skills at a sufficient level to enable students to gain a foothold on the professional ladder within an occupation. Most programs also teach, through a combination of classroom instruction and experiential education, a range of "employability" skills: resume preparation, job searching, interviewing, and on-the-job roles, responsibilities, and human relations. Less commonly, gains in academic skills were reported, often by students who observed that their STW experience had motivated them to pay more attention to academics, because now they saw the connection between "book learning" and real world experience.

A new sense of career direction is another very important short-term outcome for students documented by the AED/NIWL study. STW students acquired both formal career plans and a personal, career-directed way of thinking about their futures. Most of the AED/NIWL sites had in place an individualized career planning process integrated with student course selection and postsecondary plans. These processes mean that every student has an individual plan to guide him or her through high school and beyond, in contrast to the traditional system of clumping students

into college-going, vocational, or general tracks. Going through the formal process, however, also appears to have enabled many students to internalize career planning processes, a lifelong skill that enables them to weigh their plans against their goals and resources, and take responsibility for changing their plans as their goals shift.

Students in STW programs discussed their career plans thoughtfully and knowledgeably, demonstrating their acquisition of career planning skills and ability to apply these to their own lives. In particular, students talked about their own career paths, explaining step-by-step plans for acquiring the training, work experience, and sometimes even the financial resources they would need to achieve their career goals. They had an integrated vision of schooling and work, and incremental view of building careers. Students and teachers also both observed that students who previously had shied away from college entirely were now planning at least some college course work.

Motivation is a broadly defined concept, but anyone familiar with high school students in the late 1990s knows how critical it is. Students in STW programs and the adults who work with them report remarkable improvements in motivation, both among students who do well in traditional classrooms and students who do not. Even students who have left school, or are on the verge of it, become motivated to return and to succeed in school. Students apply themselves in new ways to their studies, both on the job and in workplaces. They have an answer, as a principal at one site observed, to the question "Why am I studying this?" Various explanations are offered for the increased motivation: visible rewards in terms of career experience and prospective employment, opportunity to be treated as adults in an adult world, learning that is contextual rather than abstract, pedagogy more conducive to a range of learning styles, and the opportunity to escape from the high school building.

Closely related to motivation, but a more sweeping outcome, is the development of "empowered" students. By "empowered," we mean students who have the knowledge, freedom, self-esteem, and motivation, connected to a deep sense of individual responsibility, to make independent choices for themselves and play meaningful roles in setting the course of the STW program itself. A setting with empowered students has achieved a profound educational reform, because in many respects it is the mirror opposite of the traditional high school classroom. To achieve empowerment requires an educational setting that grants significant power to students, and prepares them to use it responsibly. AED/NIWL teams found several sites that were attempting to create such a setting through STW. Ultimately, empowerment means achieving the maturity to make adult decisions and take responsibility for the results. This is obviously an important step, not only in developing lifelong learners, but in producing responsible citizens. It is important for all young people, but for those with learning disabilities or personal problems that have hindered their social development, it is the step that makes successful independent living possible.

Outcomes for Business and Industry

Although STW reform is primarily intended to benefit students, the AED/NIWL study found evidence of positive outcomes for business and industry as well. Businesses were pleased to have the immediate benefit of extra workers provided through STW internships, although some employers complained that, under short-term arrangements, by the time students were trained and

up-to-speed, the internship had ended. We also found evidence that, besides providing an extra pair of trained hands, students can supplement an employer's work force in more sophisticated ways, performing tasks that otherwise would not be accomplished. Students apply problem-solving and technological skills, conducting a marketing survey in Sitka (Alaska), for example, or surveying fire safety systems in Dayton (Ohio), or training adult employees in the use of computer technology in Fort Pierce (Florida). In these examples, the educational system has supplied business with the latest or most sophisticated workplace techniques, rather than the other way around.

Some businesses also reported as a positive outcome the development of a better-trained pool of potential employees, who understood the industry and its needs. Business representatives on advisory groups, in particular, were pleased with the opportunity to shape the curriculum of occupational training in the high school, and believed they were having an influence on these programs and their graduates that would ultimately pay off for business in terms of a better qualified workforce. Indeed, the case studies found some evidence of businesses hiring graduates of STW programs.

The organizational structures of STW programs and systems create new roles for business and industry that together amount to a more continual and more substantive presence in the educational system. Business takes on leadership roles through representation in partnership steering committees and advisory groups, but it also plays face-to-face roles with students and instructors as employers work as mentors, trainers, and curriculum developers.

Itself an important outcome for business, this enhanced presence in the schools leads to a series of additional outcomes. Surveys have indicated that many employers have negative assumptions about young people and their schools; the case studies found that employers who work with students as part of STW programs tend to express positive attitudes about these students--although they may still have criticisms of their schooling. Some business representatives, however, also expressed more understanding and even appreciation for the challenges facing schools, and how much is accomplished despite these.

Face-to-face supervision and mentoring of students in the workplace at times produces practical and positive outcomes for business. Employees who supervise students gain supervisory, mentoring, and training skills. Analyzing tasks in order to convey them to students, and analyzing competencies in order to assess their accomplishment, has led to improved internal training for regular employees, and reexaminations of internal career paths, according to some businesses.

Collaborating with other community representatives on advisory groups and partnerships has the beneficial outcome for business partners of improved political and business connections. Businesses make new contacts and have opportunities to develop existing relationships that go beyond the STW initiative.

Participation in STW also provides a business with an avenue for good public relations. The role can bring the business more visibility in the community, specifically within the schools--often the heart of a community--and in a fashion that demonstrates commitment to children and to the community's future.

AED/NIWL found, however, that many of the businesses participating in STW appeared to be motivated by a sincere commitment to community service, rooted in a sense of social responsibility. STW programs have many positive outcomes for businesses, but they also require a great deal in energy, time, and resources. Businesses that do participate, however, also appear

to have their sense of commitment reinforced by their participation, both because they see results for their efforts, and because they see, firsthand, how serious the issues are. Such businesses often become advocates for school-to-work, encouraging other businesses to take part.

Outcomes for Schools

By definition, the outcome of STW reform is the transformation of the educational process itself: changed curriculum, pedagogy, standards, assessment, scheduling, even the physical location for learning. School-to-work is an educational reform so profound that it literally transforms every aspect of schooling, at least at the secondary level. This recognition goes a long way to explaining the complexity of STW reform, and the resistance with which it often meets in schools.

Secondary Schools. The AED/NIWL researchers documented many outcomes for secondary schools resulting from the introduction of STW programs. Although those involved generally reported these to be positive outcomes, they were often achieved at the cost of some burnout among STW leadership and over the objections of some staff members.

One outcome is the introduction of new resources--usually brought about through business or other partnerships, sometimes through grants: equipment, funds, advice, speakers, mentors, staff development, student placements. These resources represent new opportunities for students, obviously, but also for school staff.

Which leads into the second outcome: opportunities for the professional development of instructional, counseling, and administrative staff. STW reform means new staffing configurations, new kinds of responsibilities, and new ways of thinking about existing roles and relationships within the school. Staff members who become committed to the reform will see these innovations as opportunities for personal growth as well as for an improved school. They pursue formal training introduced through STW reform and make their own opportunities for personal development.

When STW reform engages school staff in professional development in this manner, it has the further outcomes of creating a more knowledgeable and a more motivated staff. The AED/NIWL site visitors found many instructors who reported that STW had led them to understand and adopt more comprehensive views of student learning processes. Counselors tired of planning career days were reengaged by the opportunity to create more sophisticated career planning systems. Staff members who become engaged in STW reform bring renewed energy and creativity to their work, perhaps in part because, like their students, they have a new sense of purpose for what they are doing in school. Sometimes this also results in a new, formal mission statement; sometimes it is simply a new sense of mission.

As observed above, STW reform by definition leads to the outcomes of changed curriculum, pedagogy, assessment, and scheduling and location of learning. STW reforms in these areas tend to mean certain thematic outcomes as well: more individualized approaches to students and their learning, more flexibility in styles and structures, more competency-based and standards-based teaching and assessment.

A transformation of the school's career counseling system--its structure and process--is also by definition an outcome of STW reform. The AED/NIWL case study process uncovered different models, which, in contrast to traditional guidance counseling, depend upon individual

student career and educational planning processes, continual assessment, and up-to-date labor market information, and do not emphasize application to traditional four-year college programs.

Another outcome of STW reform is that it results in less isolated schools. STW brings schools into the community, and invites a variety of community partners into the schools, who in turn bring new perspectives, resources, and connections. The STW processes in which they engage are likely to lead to a community that knows more about the schools and feels more commitment to what happens within them. In some cases, this sense of ownership has led to practical support, such as passage of a school bond issue.

A final outcome of STW reform is that it tends to reorient secondary school thinking towards a K-14+ concept. High school graduation is no longer the goal towards which all activity in the school points: staff members are creating new articulation arrangements with postsecondary institutions, and helping their students plan their futures with the years after high school graduation in view. High school graduation and college admission have become steps in a lifelong learning process, rather than make-or-break hurdles.

Postsecondary Schools. Colleges and universities who engage in STW programs also reorient their thinking towards a K-14 or even K-16 model, making traditional college admission requirements more flexible, granting college credit for STW courses, and even admitting students still in high school to college courses. This reorientation is a significant outcome, but so is the reform in admission requirements, which may change both the process and the materials required, for example, waiving credit requirements or accepting student portfolios. We did find, however, instances in which postsecondary systems were not responsive to these new systems, even openly setting policies that blocked the admission of STW students.

On a practical level, articulation and other agreements may mean a new source of incoming students for colleges. Increased enrollment is usually reported to be a welcome outcome, but some colleges have had more students seeking to enroll than they could serve.

Another outcome is that engaging in STW programs enables colleges and universities to have an impact on prospective students. Through articulation processes, college faculty and staff shape curriculum, strengthen standards, and assist teachers at the secondary level. In these ways, they help determine the preparation that students will bring to the postsecondary classroom.

Elementary and Middle Schools. Not surprisingly, the AED/NIWL study found relatively few outcomes for elementary and middle schools as a result of STW reform, for two reasons. First, our study's focus was on secondary school reform initiatives rather than STW reforms in elementary and middle schools. Secondly, few secondary level STW reforms reach even as far as the middle school. Where there was a STW presence in the middle school, the primary outcome tended to be a strengthened, more systematic career exploration/awareness process. We documented a few curricular changes in middle school classrooms as well.

Outcomes for Other Organizational Partners

STW systems must work with secondary school, business, and postsecondary partners, but often engage other organizations as well, including government agencies, job training entities, community-based organizations, human services organizations, labor unions, and research organizations. In many cases, these partners are being brought into the educational system for the first time, an outcome intended to benefit students that may have desirable outcomes for the

partners as well. Collaboration on a STW agenda is likely to introduce people to each other for the first time, create relationships in a new and collaborative context, and suggest new ways of working together. The AED/NIWL research team found evidence of activities apparently spun-off from collaborative planning on STW.

As this summary suggests, effective STW reform, like the proverbial pebble tossed into the pond, has a ripple effect that bears important outcomes for all the major playrs in the effort. Outcomes for students may be most crucial, but the system's survival is also influenced by how it affects the organizational partners.

ASSESSMENT OF RESOURCES REQUIRED TO IMPLEMENT THE REFORMS

The introduction of a school-to-work reform inevitably means expenses that are not part of the standard budget schedules of school districts and secondary schools. Many sites visited by the AED/NIWL research teams reported some initial struggle to secure the resources required to implement a school-to-work reform, and many were still experiencing uncertainty about the future of the reform because of financial issues.

The sites visited by AED/NIWL reported that they needed financial support (or in-kind contributions) to cover the following kinds of expenses:

- purchase of equipment and materials related to occupations
- transportation for students between schools and workplaces
- training for staff members
- release time for staff members
- new staff positions (school-to-work coordinator, transition specialist, job coach)
- insurance
- workman's compensation costs

We found considerable variety, across sites and within sites, as to which resources were considered necessary for the reform. For example, some sites hired no new staff members; others made the coordinator or job coach role a key element of the reform. Some relied extensively on professional development for staff; others provided no release time or training. Some were able to tap into the existing school transportation system; others let students rely on public or personal transportation to travel to and from their work and postsecondary education sites.

We also found variety as to how sites covered these expenses. Some applied Carl Perkins basic vocational funds to implementation. At least two secured discretionary Perkins monies. In a few states, like California, the state system of education was an important source of implementation funds. The transition programs studied by AED/NIWL that initially focused on special needs populations were especially creative in weaving together funds and services provided by a variety of government sources, including education, job training, and rehabilitation funding programs.

Resources from the private sector also played a key role in implementation, typically directed to a particular occupation. Thus Honeywell contributed funds and technical assistance to the Metro Tech electronics program in Phoenix, and the airline industry contributed major equipment and assistance to the Aviation Magnet in Louisville, Kentucky. Many schools successfully called upon business partners to contribute advice, funds, materials, equipment, personnel, and student placements.

The AED/NIWL research team did <u>not</u>, it should be noted, conduct any cost analyses of school-to-work reform. While schools must find funds to pay certain implementation costs for these reforms, it is not clear that, in the long term, functioning school-to-work programs or systems are necessarily more expensive than standard classroom-based programs or systems. Comparative analyses of costs, and more importantly, cost-benefit analyses that take outcomes into account, could clarify the issue of relative costs for policy makers and practitioners.

IMPLICATIONS FOR POLICY AND PRACTICE

The primary implication of AED/NIWL's study for policy and practice are summarized in the twelve elements that we identified as critical building blocks of school-to-work systems. The cross-site comparison report, "Learning from Experience," explains the twelve elements in detail, offering examples from the case study sites to document each one.

Element One: Leadership from executives of educational systems
Element Two: Leadership from program deliverers
Element Three: Professional development for teachers and other staff
Element Four: Cross-sector collaboration
Element Five: Student self-determination
Element Six: School-based curriculum and instruction
Element Seven: Work-based learning strategies
Element Eight: Integrated career information and guidance system
Element Nine: Progressive system that starts before grade eleven
Element Ten: Articulation with postsecondary institutions
Element Eleven: Creative financing
Element Twelve: Application of research

These elements should be incorporated into school-to-work practice, and policy makers should ensure that regulatory and other government activity supports their incorporation.

Implementers of school-to-work reform commonly encounter legal and regulatory barriers, only some of which are the product of secondary school systems, especially in creating workplace learning opportunities: FTEs, seat time, occupational safety issues, regulations for grants disbursement, and child labor laws. In many cases, sound reasons exist for these regulations, and they should not be easily dismissed. Others interfere in arbitrary ways with creative, thoughtful approaches to placement development for students.

Another type of barrier is presented by postsecondary admission requirements. The case studies document examples of colleges that have entered into articulation agreements with high school STW programs, which have made it much easier for young people to achieve this transition. We heard of other instances, however, of postsecondary systems arbitrarily deciding which high school courses would be considered for credit, sustaining invidious distinctions between academic and vocational course work. It will be important for state postsecondary institutions to cooperate with state STW and K-12 systems to ensure that these artificial barriers are eliminated. A key issue will be the stance that postsecondary systems take on alternate assessment, such as portfolios.

Effective STW programs require pedagogical and curricular approaches that are not usually accorded much consideration in teacher training programs. Both preservice and inservice teacher training will require reform in order to prepare instructors for the contextual, interactive, more flexible approaches demanded by STW programs. Teacher training programs should incorporate STW into instruction concerning curriculum, pedagogy, and assessment. They should offer internships and other opportunities for teachers and prospective teachers to explore firsthand a

variety of workplaces.

The AED/NIWL study documented cases of business partners making important contributions to STW. Policy makers and practitioners cannot expect that businesses, especially those operating on a close margin of profit--as most do--will participate in STW out of altruism, however. Incentives, such as tax credits, should be devised to help businesses balance bottom-line demands with the desire to assist in the educational system. Also important will be efforts to educate businesses to the range of benefits that can accrue to them through STW participation, outlined in section J of this volume, which include new community and school connections, improvements to internal business systems of training and career path structures, student workers who sometimes bring new problem solving or technological skills as well, the opportunity to influence the training of future workers, good public relations, and so forth.

The basis of STW system building is partnership, yet the AED/NIWL study found one group of partners conspicuous by their absence: parents. Only one site effectively engaged a substantial proportion of parents in STW. Because parents are so important in their children's lives, and because they often emphasize admission to a baccalaureate program above other career and educational goals, it is crucial for policy makers and practitioners to devise and implement strategies to engage parents in school-to-work. The bottom line is to convince parents that STW can be an effective strategy for both students who go directly to work after high school and those who go on to two- and four-year colleges.

Another implication of the AED/NIWL study is the need for more widespread and effective publicity about STW--locally, nationally, and at the state level. Parents, teachers, and employers often do not understand STW, let alone how it could benefit themselves and their children, students, and prospective employees, respectively. Policy makers, who do not understand STW, cannot appreciate how regulatory or financing systems create arbitrary and unnecessary barriers. These informational campaigns should recognize the distinctions among these prospective audiences and incorporate the principles and techniques of "social marketing," a marketing approach that attempts to influence people to voluntarily change their behavior, through persuasion, incentives, or social norms.

As these recommendations indicate, STW system building requires practitioners and policy makers to simultaneously assemble new systems and disassemble old barriers. Needless to say, it also requires collaboration among practitioners and policy makers, who bring such different perspectives to system building.

IMPLICATIONS FOR FUTURE RESEARCH

The AED/NIWL study's findings underscore a number of areas in which further research is needed in order to further clarify the impact of school-to-work reform on students, the impact on employers, the relative effectiveness of various reform strategies, the development of systems for school-to-work, and the implications for financing school-to-work systems. We are much more able now, than we were several years ago, as a result of this study and others, to recommend more focused areas for future research.

We recommend several avenues for exploring the impact of school-to-work reform on students. First, additional long-term follow-up studies of student outcomes are needed, to learn more about the relative effectiveness of various approaches and to help system administrators strengthen local initiatives. Most of the sites visited by the AED/NIWL research team had not conducted valid, long-term studies of student outcomes. The ideal study would examine students six months, eighteen months, three years, five years, and ten years after graduation, seeking information about their employment status, pursuit of postsecondary education, income level, independent living, and evidence of connection between their school-to-work experience and these outcomes.

Secondly, we recommend studies that consider student outcomes in youth development terms--such psychological and social characteristics as motivation, self-determination, responsibility for oneself and others. Adults and students often reported to the AED/NIWL research team dramatic instances of such change among students. It is important to attempt to measure more systematically the extent and depth of such impacts. The anecdotal reports of impacts offer tantalizing hope that school-to-work reform could redress fundamental issues hindering schooling that at first glance have little to do with occupational preparation.

Thirdly, we recommend cognitive studies of the impact on students of "contextual learning": educational settings in which students learn in real-world contexts, a basic aspect of school-to-work learning. These studies should compare and contrast the impact of different approaches: academies and student enterprises, for example. This research could add importantly to our knowledge base, both about contextual learning and about effective school-to-work strategies.

A fourth area suggested for research would be intensive case studies of students in workplaces over time. The AED/NIWL case study structure did not allow for more than brief workplace observations, and we are unaware of any long-term studies of this nature. This approach would enable practitioners and policy makers to learn more about the relative effectiveness of different strategies for integrating learning into workplaces, more about the types of skills transmitted, more about the quality and clarity of assessment practices, and more about how students and their workplace supervisors perceive these experiences.

A fifth area recommended for further research concerns access and equity of STW programs: studies of student tracking, equal educational and occupational opportunity, and sex role and racial stereotyping. The AED/NIWL study found few sites that had made equity a special concern. The issue of whether STW programs are "tracking" students according to gender, race, or educational achievement--either deliberately or through student self-selection--is an important area for research. At the very least we will need to look at the nature of tracking between academic and career programs under the new STW system, and whether tracking occurs within specific career programs. We should study whether skills standards have an impact on

equity and access.

We also recommend a sixth area of research: analysis of the costs and benefits to students of working, both in terms of the impact of working while in school and perceptions of students who work. The debate concerning the pros and cons of combining work with schooling has continued for at least a decade. As work becomes an acceptable, even required aspect of the educational process for larger groups of students, including those planning to go to college, we should do studies that examine the impact of work on schooling (grades, attendance, test scores), social relationships, extracurricular and other activities, and use of alcohol and drugs. We should consider whether students, teachers, parents, and employers perceive working in different ways if it is sanctioned by the school.

We also suggest research to examine how employers and postsecondary institutions perceive the impact of school-to-work experiences on students who arrive at their doors as workers or college students. These studies will be important simply to discover how important partners in the school-to-work effort perceive the results of these initiatives, but also as a source of comparison data with other outcome studies. For example, the studies could ask both employers and postsecondary staff to compare graduates of school-to-work programs with nonparticipants, along a spectrum of characteristics.

Another area in which we recommend further case study research would be pedagogical and curricular changes, and their impact on student learning at different grade levels. Intensive case studies would enable researchers to focus on direct relationships between specific interventions and specific learning or developmental changes in students.

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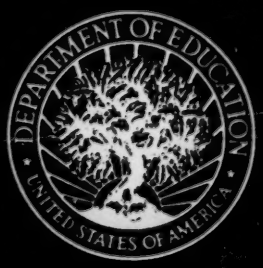

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